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Retrolental Fibroplasia in New York State

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A recent study indicates that the incidence of severe visual impairment from this disease is inversely related to the length of gestation within each birth weight group.

THE problem of partial or complete blindness as a result of retrolental fibroplasia among premature infants has become a matter of great interest among both professional and lay groups. Reports about the extent of this problem have produced conflicting evidence. Most of these reports have related to infants born in individual hospitals and medical centers. While the incidence of gross visual handicap is reported to have increased in some hospitals during the past decade, in others the reverse seems to have been the case.

There are general indications of an increase in the number of children of preschool age with severely impaired vision from retrolental fibroplasia which, if confirmed by careful studies, might be due in whole or in part to increased survival of premature infants, particularly those in the smaller birth rate groups, or it might represent an actual increased incidence of the condition among surviving infants in various birth rate groups.

The study being reported upon was undertaken with two objectives in

view. The first was to obtain a picture of the incidence of gross visual impairment from retrolental fibroplasia in a geographic area larger than those covered in previous reports. The second was to provide a reasonably reliable baseline which might be compared with future studies, so that some picture of the trend of the incidence of the condition, as related to the total number of births and to the numbers of surviving premature infants in various birth weight groups, might be obtained. The study covered the infants weighing less than 2,000 grams at birth who were born during 1948 and 1949 to residents of New York State, exclusive of New York City. It should be emphasized that the present study is limited to cases of severe visual impairment or total blindness which are the end results of earlier stages of retrolental fibroplasia. Comparisons should not be made between the results reported in this study with the results from other studies which may cover the incidence of retrolental fibroplasia among premature infants including the earlier

and potentially reversible stages of retrolental fibroplasia as well as the later stages reported upon in this study.

Selection of Cases

Since previous reports have suggested that most cases of retrolental fibroplasia occurred among smaller premature infants, only those infants were selected for the study whose birth weights, as given on the birth certificates, were less than 2,000 grams or who had an equivalent gestation when their birth weight was not stated, and of these only those infants surviving to four months of age were followed. Initial data were obtained by questionnaires mailed to the mothers of the infants selected and follow-up letters were sent to parents who did not reply to the first inquiry. Public health nurses visited in the homes when no reply was received to the questionnaires.

When there was any indication of any impairment of vision, the physician named on the questionnaire was queried or information was requested from the New York State Commission for the Blind. When a clear-cut diagnosis of the cause of visual impairment was not obtained from the physician, an ophthalmological report was obtained in one of several ways. In all, 3,667 infants or 1.2 per cent of all the resident live births in New York State exclusive of New York City in the two year study weighed less than 2,000 grams at birth and survived to four months of age. Information was obtained on 3,377 or 92 per cent of the infants.

In the groups of infants about whom information was obtained, a total of 50 cases of gross visual im-

pairment due to retrolental fibroplasia was uncovered, giving an overall incidence rate of 1.5 per cent for the two years studied. As in previous reports,¹ a definite relationship was found between the incidence rate and the birth weight of the infant. In the birth weight group under 1,000 grams an incidence rate of 15.9 per cent was found, with rates of 4.3 per cent and 0.7 per cent in the two successively higher 500 gram birth weight groups.

Relation to Gestation Period

Similarly, when incidence was related to period of gestation, it was found that the infants reported to have the shortest periods of gestation had the highest incidence rates. In the group of 288 infants having a period of gestation under 7 months, a rate of 7.6 per cent was found, whereas the incidence rate was only 0.3 per cent in the 1,898 infants whose period of gestation was reported as 8 months or more. In the intermediate group with length of gestation between 7 and 8 months, the rate was found to be 1.9 per cent.

The effect of birth weight and length of gestation on the incidence of the condition was also analyzed. Although the numbers are small and there is some question of the accuracy of the reporting of length of gestation on the birth certificate, it was found that the incidence of severe visual impairment from retrolental fibroplasia was inversely related to the length of gestation within each birth weight group. Among the infants whose period of gestation was reported as less than 7 months in the birth weight group from 1,000 to 1,500 grams, the incidence rate was found to be 7.0 per cent, whereas infants in the same

birth weight group whose period of gestation was reported as more than 8 months or more a rate of 1.9 per cent was observed.

The decrease in the incidence of visual defect from retrolental fibroplasia with each increment in length of gestation and birth weight suggests the possibility that even brief prolongation of pregnancy would significantly reduce the chances of visual handicap from this cause, and that every effort should be made to prolong pregnancy, even though this may not be successful in bringing the infant to term, as an important step in reducing the incidence of severe visual handicap from retrolental fibroplasia.

Complicating Factors

Other factors were also studied. Reporting of complications of pregnancy and labor on the birth certificate made it possible to study complications as a group, but the numbers were too small to attempt to investigate the relationship of different types of complication. While all premature infants are born to mothers who have a higher incidence of complications of pregnancy and labor, the birth certificates of infants who developed gross visual defects due to retrolental fibroplasia showed the same proportion of major complications of pregnancies as the entire group of premature infants studied. With respect to sex of the infants, a slightly higher rate was found among males of the same birth weight than among females. When adjusted for differences in weight distribution, a rate of 1.7 per cent was found in males as compared with 1.2 per cent in females. This slight difference, while not of statistical significance,

appears to be in the same direction as in other reports. There was no particular aggregation of cases in any month or season of the year, nor was any significant difference found in the rate among infants born to mothers above and below 30 years of age.

Guide for Referral

"From time to time physicians are confronted with problems of patients with impaired eyesight who obviously could benefit from services provided through state agencies," says John Hitz, M.D., chairman of the Committee on Visual Defects of the State Medical Society of Wisconsin. Writing in the July 1952 issue of the *Wisconsin Medical Journal*, Dr. Hitz continues, "What those services are and where they can be secured is occasionally not understood fully by the physician who is in a position to advise his patient and give him the help needed for proper rehabilitation and adjustment to his changed mode of life."

To remedy this situation, the Committee on Visual Defects has inserted a guide in this issue of the *Journal*, listing state agencies which are prepared to assist patients in the home, by educational opportunities, vocational assistance, or direct financial help. It contains addresses and instructions for referral. Report forms to be sent to the Division of Public Assistance accompany the insert. Both the guide and report forms are so inserted that they may be conveniently detached from the magazine and filed.

Dr. Hitz urges cooperation of all physicians in this project, saying that by early contacts with persons in need of state services much can be accomplished that will otherwise be lost.

Congenital Glaucoma

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Recent advances in knowledge and treatment of this disease permit cure in a high percentage of cases which might formerly have been considered quite hopeless.†

CONGENITAL glaucoma is one of the most serious eye diseases occurring in children. It accounts for approximately seven per cent of the admissions to schools for the blind in this country and throughout the world. The prognosis in the past has been quite hopeless. Very few of these children have grown up to adult life with preservation of useful vision. Recent advances in our knowledge, however, have considerably altered this outlook. The reason for presenting this subject in some detail is to encourage the utilization of present methods of treatment which permit the cure of a high percentage of patients suffering from this disease.

Congenital glaucoma can be divided into infantile and juvenile types. Infantile glaucoma may occur at any time from birth, when it is truly congenital, to two or three years of age.

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† Presented at the 1952 Conference, National Society for the Prevention of Blindness, Inc., Mellon Institute, Pittsburgh, Pa., on March 19, 1952.

Juvenile glaucoma occurs from two or three years up to 30 or 35 years of age. It probably results from a congenital predisposition which leads to elevated intraocular pressure in children and young adult life.

Infantile glaucoma occurs at an age when the fibrous tunics of the eye are relatively non-resistant. They therefore stretch under increased pressure to give the classical signs of infantile glaucoma or so-called buphthalmos. The eyeball enlarges greatly and, as the cornea enlarges, ruptures occur in its inner layer (Descemet's membrane). Aqueous then diffuses into the cornea and causes it to become translucent or milky in appearance. The child usually becomes very sensitive to light. Juvenile glaucoma occurs in older children and young adults, a time when the eyeball no longer undergoes enlargement as the result of increased intraocular pressure.

Early Recognition Important

The treatment for either type of congenital glaucoma is primarily surgical and its success depends upon early recognition of the disease. Any

child who during the first year or two of life is excessively sensitive to light or who has suspiciously large eyeballs, with or without hazy corneas, should immediately be referred to an ophthalmologist. Educational efforts along these lines should be directed toward the pediatrician, the mother, the nurse and the social service worker. The diagnosis of juvenile glaucoma is much more difficult. Glaucoma is not usually suspected in this younger age group and in addition it usually runs the course of chronic simple glaucoma, causing no or few symptoms until near-blindness has resulted from damage to the optic nerves and contraction of the visual fields. It can be detected, therefore, only through routine examination by an alert eye specialist.

The cause of congenital glaucoma is not known, but it is thought to occur on the basis of a congenital anomaly of the angle of the anterior chamber. The anterior chamber is the space in the anterior portion of the eye which contains aqueous humor (Fig. 1). It is bounded by the cornea in front and the lens and iris in the back. The peripheral portion of this space is called the angle of the anterior chamber.

Intraocular pressure in the healthy eye is maintained at a normal level by a steady flow of aqueous humor into and out of the eye. Aqueous is produced behind the iris, by the ciliary body. It then flows forward through the pupillary space into the anterior chamber from which it escapes by way of structures in the outer wall of the angle of the anterior chamber.

The outer wall of the angle is made up of corneoscleral tissue and has a complex structure. It is comprised,

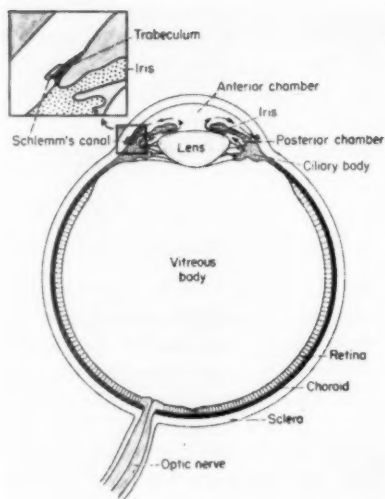


FIGURE 1

Drawing of cross section of eye. Arrows show flow of aqueous from ciliary body where it is formed, forward into anterior chamber and out of the eye through the trabeculum—canal of Schlemm mechanism. Insert—magnified drawing. Angle of anterior chamber indicated by the square.

from its inner aspect out, of the trabeculum, the canal of Schlemm and a layer of corneoscleral tissue. Aqueous humor flows from the anterior chamber by passing through the trabeculum, which is comparable to a filter, into the canal of Schlemm and in turn into vessels called aqueous veins which drain the canal and empty into the scleral and conjunctival veins.

Infantile and juvenile glaucoma is thought to result either from abnormal tissue of congenital origin, overlying and obstructing the trabeculum, or to absence of the canal of Schlemm or both. Abnormal tissue over the trabeculum is thought to be the commonest of the two causes. Aqueous humor therefore cannot escape from the eye and because it con-

tinues to be formed the pressure within the eye becomes elevated.

Treatment

The treatment of infantile or juvenile glaucoma by medical means with miotics is of little value. In my own experience, infantile glaucoma does not respond to medical treatment and even though the tension may be controlled occasionally in patients with juvenile glaucoma, the chance of carrying these patients throughout life with preservation of vision would be small. A surgical approach, therefore, seems advisable.

In the past almost every conceivable operation had been tried for infantile glaucoma but the conventional procedures such as corneoscleral trephination and others were found to be of little value. However, Barkan, in 1942 and 1947, reported excellent results from the use of an operation which he called goniotomy. This was an operation first suggested and performed for primary glaucoma of adults by de-Vincentiis in 1891. It fell into disuse and poor repute because it proved of no value in that type of glaucoma. As a result, it was little or not at all used from the beginning of this century until Barkan revived it and adopted it for the treatment of congenital glaucoma, for which he deserves great credit. Scheie later reported results comparable to those of Barkan, and subsequently other observers have further confirmed the value of the procedure.

Goniotomy

Goniotomy consists of inserting a specially devised knife into the anterior chamber through the cornea just within the limbus and carrying

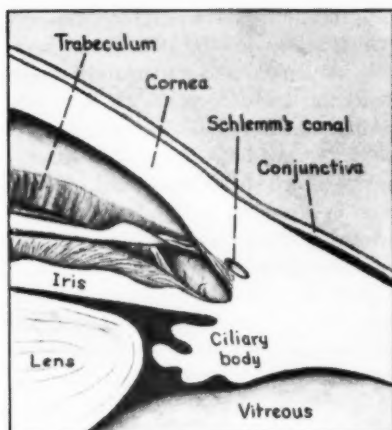


FIGURE 2

Drawing showing mechanism of action of goniotomy. Goniotomy knife stripping abnormal embryonic tissue away from the trabecular area.

the tip across the chamber to the opposite angle where sweeping incision is made with the tip of the knife along the trabecular region of the angle wall (Fig. 2). Barkan believes that the operation wipes away the embryonic tissue from the region of the trabeculum, thereby re-establishing normal escape channels for aqueous humor through the canal of Schlemm mechanism. Seventy to 80 per cent of patients can be cured by this procedure.

Juvenile glaucoma responds much better than the infantile type to the conventional operative procedures. These operations, however, leave the eye mutilated and subject to late complications, such as late infection, cataract formation, ocular hypotension and others which considerably diminish the chances for maintaining good vision throughout life in such youthful individuals.

Recently, as a result of observations following goniotomy, Scheie developed

a procedure termed goniopuncture which seems to offer promise in juvenile glaucoma, and in certain patients with the infantile type. He observed a fistula through the entire corneoscleral wall following a goniotomy which successfully controlled the tension in a patient with advanced juvenile glaucoma. He concluded that the operation had been effective by providing for the subconjunctival drainage of aqueous. After observing this patient for a few weeks, he devised an operation whereby such a fistula is deliberately produced. The knife is carried across the anterior chamber, as in goniotomy. Instead of a sweeping incision the blade is pushed through the corneoscleral wall into the subconjunctival space, but not perforating the conjunctiva (Fig. 3). A fistula results which controls the intraocular pressure in a significant percentage of patients.

Goniopuncture also has been found to be effective in certain patients with infantile glaucoma where goniotomy has failed. This seems logical because if, as Barkan has suggested, the canal of Schlemm is absent in certain instances, goniotomy could not then be effective but goniopuncture, which produces an actual fistula for escape of aqueous, might succeed.

Many Advantages

The advantages of goniotomy or goniopuncture are many. The operations are simple to do and complications are unusual. Occasional anterior chamber hemorrhages occur at the time of operation, but with proper management the outcome is not affected. Occasionally a small iridodialysis may be caused. Postoperative adhesions of the iris to the posterior

surface of the cornea can usually be avoided by refilling the anterior chamber following surgery. There is danger of injury to the ciliary body, but as yet no cases have been reported where this has been recognized, and no instance of sympathetic ophthalmia has ever been observed. Goniotomy avoids the dangers attendant with the making of larger openings into the eyeball, such as vitreous loss. Late infection and cataractous changes are not as apt to occur as in ordinary filtering operations because the fistula is so small and the eye so little damaged that they appear grossly normal following surgery. Only the most meticulous examination can demonstrate the fact that any operation has been performed. A further advantage, in addition to their safety and simplicity, is that these procedures do not interfere with subsequent filtering operations such as iridencleisis or corneoscleral trephination.

Patients Carefully Followed

These patients should be carefully followed postoperatively. Ordinarily,

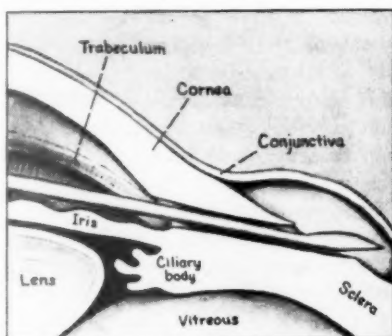


FIGURE 3

Drawing showing mechanism of action of goniopuncture. Goniopuncture knife passing through trabecular region of corneoscleral wall to reach the subconjunctival space.

if the tension remains under control for two months following operation, it remains so. Examination should be done under complete surgical anesthesia at monthly intervals for three months after the operation, and then at three-month intervals for the first year. It is then reduced to six-month intervals until two years postoperatively, and then is no longer recorded if the child remains symptom-free and the tension normal to palpation. Post-operative measurement of ocular tension is less of a problem in the older group with juvenile glaucoma.

At least 80 per cent of eyes with infantile glaucoma are apparently being cured by goniotomy, goniotomy or a combination of the two, and a significant percentage of eyes with juvenile glaucoma respond to goniotomy. Further evaluation of these procedures is being made, and observation should be continued over a period of many years. The possibility of late changes or delayed rise in tension must always be remembered.

We reserve corneoscleral trephination, iridencleisis, cyclodialysis and cyclodiathermy for those eyes where three or more goniotomy or goniotomy operations have failed. Review of our results has revealed that if goniotomy or goniotomy does not control the tension after two or three reoperations, there is little likelihood that either will do so.

Conclusions

1. Congenital glaucoma probably results from an anomaly of the trabeculum-canal of Schlemm mechanism.
2. Goniotomy and goniotomy alone or combined control the ocular tension in a significant per-

centage of eyes and in the author's opinion should be employed for at least the first operation.

3. In addition to being effective, they are easy to do, accompanied by few complications, and do not interfere with subsequent filtering operations.
4. Results from surgery are best when done early in the course of the disease. This necessitates early diagnosis which depends upon the mother, nurse, social worker, pediatrician and ophthalmologist.
5. Further educational efforts should be made, calling special attention to the not infrequent occurrence of glaucoma in individuals of the age group from birth to 30 or 35 years of age.

Glaucoma Film in Wide Use

The National Society's film, *Glaucoma—What the General Practitioner Should Know*, has had 140 showings since distribution began ten months ago. Audiences have totaled at least 5,000. Medical meetings at which the film has been shown include those of the American Medical Association; Pan-Pacific Surgical Conference, Honolulu; Puerto Rico Medical Association, San Juan; Pan-American Congress of Ophthalmology, Mexico City; Atlantic Coast Line Surgeons Association; Louisville Society of Physicians and Surgeons; Pacific Coast Ophthalmological Society; Pennsylvania Academy of Ophthalmology and Otolaryngology. Other groups which have viewed the film are state, county and local medical societies, hospital staffs and postgraduate students.

Such comments as "excellent for teaching facts about glaucoma;" "renewed interest in use of ophthalmoscope;" and "instructive in making the general practitioner more aware of the problem" have been received from sponsors of the showings.

Crisis in a Michigan Plant

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When a mysterious eye affection took the sight of several workers during a critical production period the management tried desperately to find the cause. How the Michigan Department of Health got on the case and solved it within 36 hours is an interesting and impressive story.

THIS happened in the severe winter of 1944, when the Battle of the Bulge was raging in Europe and critical war materials had to be produced at top speed, 24 hours a day.

Late one afternoon I called at a plant whose finished products were so vitally needed that they were being rushed to the airport immediately, flown to the east coast and loaded in planes for France. I made my inspection, and was standing at the front door buttoning up my overcoat when the personnel manager came through the lobby. He stopped when he saw me and we talked for a few minutes. Suddenly he said, "If you have time, would you mind stepping back to my office? I'd like to talk over something with you."

We walked back to his office; he asked me to wait a few minutes—he'd be right back. I waited 15 or 20 minutes. When he finally did return he seemed embarrassed and said, "Well, I thought I had something I wanted to talk over with you, but I guess I

haven't." I knew what had happened. The plant manager had refused to give him permission to tell me about some plant problem.

That evening I kept thinking about this incident and decided to find out what the problem was, if I could. It turned out that I didn't have to make any effort. An Army officer telephoned me the next morning asking if I would attend a meeting at the plant I had left the afternoon before. Apparently the personnel manager had stirred up some trouble.

Arriving there I found a serious group of men which included the plant and personnel managers, the plant physician, the local union president and representatives from the Army. The plant manager explained that in the past three months an unidentified eye affection had caused several workers to lose the sight of one or both eyes. The management was trying desperately to keep the situation under cover, to prevent a panic among the 3,000 workers.

The personnel manager then outlined the progress of this peculiar affliction and what had been done to prevent it. The plant physician gave some brief case histories. What course should now be taken?

The Army insisted that the plant keep operating; the material was too critical to stop production. Furthermore, we all had to agree that closing down would serve no purpose in finding the cause of the trouble. The union representative reported that already there was a rumor in the plant that several of the employees had gone blind from some mysterious disease originating there. He didn't know how long he could keep the workers in line, but estimated it wouldn't be more than a few days.

Would the Michigan Department of Health and our industrial division assist them in locating the trouble? I assured them we would try and try hard, but of course we could not guarantee success. Certainly something *had* to be done—and done quickly. The union representative agreed to work with us as much as possible but thought we would have to show actual progress within a few days.

Starting to Work

When the meeting broke up I went to the medical department, talked to the physician and nurses, and got a list of all the employees who had been afflicted. I also went over the production flow sheet and spotted in the work areas of each patient. The case histories were practically identical. Each patient had come into the medical department with a feeling that there was something in his eyes. Each was treated and sent back to work, only to return about an hour later

with his eyes getting progressively worse. All were finally referred to an ophthalmologist in the community.

A call on this ophthalmologist proved to be the most fruitful part of the day. He was intensely interested in the cases; had done some investigation on his own. He told me that after he examined the first patient he had observed a peculiar thing; it appeared that the cornea of the eye was being eaten out. He sent the patient to the hospital for further observation. On visiting there that same evening he found the cornea to be completely destroyed.

The ophthalmologist frankly admitted that he was absolutely baffled. He had never seen anything like that before and thought he never would again; but much to his surprise a few days later the second patient came in from the plant with the same condition. This time he sent the patient to the hospital, went there himself immediately after, took a specimen of the material around the cornea and sent it to the laboratory for analysis. The report came back that the specimen contained *Pseudomonas aerogenes*. A bacterial infection was eating out the cornea.

The physician looked up the literature but could find no treatment for this infection. He made long-distance calls to specialists in eye diseases in New York, Chicago, and Kansas City but none knew of a treatment. One specialist said he had had a similar experience but could do nothing about it.

This second case, and all the subsequent ones, ended like the first—with loss of sight in the infected eye or eyes. The ophthalmologist knew that there was only one way to attack the prob-

lem and that was to find out the source of the *P. aerogenes*.

When I got back to my office that afternoon, I had gathered considerable information. Now, I'm an engineer and not a bacteriologist but the great advantage we have in our work is that we can call in specialists in many fields of public health. They are right there in the Michigan Department of Health with us. I called our epidemiologist who agreed from my data of the production flow and the kind of work done in the plant that the people who were afflicted could have had no common focal point of infection as far as handling materials was concerned. The only things they had done in common were to visit the plant medical department for treatment, and later to go to the same doctor and hospital. There was no communion of activity among those people outside the plant.

Help from the Laboratory

I then went over to see Dr. Pearl Kendrick of the Michigan Department of Health's branch laboratory. She is one of those persons who will go all out to help you; is internationally known for her work in developing a whooping cough vaccine. Dr. Kendrick believed that the source of infection was in the plant and from what she knew about *P. aerogenes*, it could be in any number of places. It is a common type of bacteria, she explained, particularly dangerous when it gets into an open cut or abrasion in or around the eye. While she did not hold too high hopes of success, she promised me she would do all she could and agreed to send Dr. Grace Eldering with me to the plant.

Next morning I picked up Dr.

Eldering at the laboratory along with a load of working gear—swabs, saline solution, etc. She had never been in a large industrial plant in her life and I believe she had misgivings about the whole thing. She said she felt rather silly going into this huge area with four to five thousand people milling around, and trying to find a little bug that couldn't be seen with the naked eye. However, she has the true scientific spirit, and was ready and willing to give it the old college try.

Avoiding False Leads

Since time was all important we had to cut our false leads down to a minimum. We went over the whole situation in detail again—over the locations and materials with which the patients had had contact, the production flow of materials, etc. We checked all places where *P. aerogenes* could be easily cultured. We took specimens and swabs of everything with which the patients could have come in contact, including swabs from the nose, ears and hands of the nurses and physicians who had treated them. We took specimens from bottles, instruments, etc., in the medical department.

At five o'clock that afternoon we headed back to the laboratory. In spite of being very tired after this gruelling day, Dr. Eldering immediately began to run the analysis on the material we had collected.

At six o'clock next morning my telephone rang. It was Dr. Eldering. "I thought you wouldn't mind if I got you out of bed," she said. "We've got this problem licked. We found *P. aerogenes* in an eye solution used in the medical department."

I asked Dr. Eldering how she felt.

She said she was tired from working all night but would like to go back to the plant with me. I put on my clothes, drove to the laboratory and picked

her up. We arrived at the plant just as the first shift was going in, less than 36 hours from the time we started working on the problem.

Reports at AAOO Meeting

BLOOD and skin tests have indicated that toxoplasmosis, an infection caused by the parasite toxoplasma, may be an important cause of uveitis, Michael J. Hogan, M.D., San Francisco, reported to the American Academy of Ophthalmology and Otolaryngology meeting in Chicago, October 12-17, 1952.

Toxoplasmosis has been recognized as a disease only since 1923, and few cases have been reported. Most of them have occurred as congenital infections in children whose mothers had shown no symptoms. In children the eyes are generally affected, but in the few cases seen in adults there have been no eye symptoms.

Dr. Hogan, with his colleagues, Phillips Thygeson, M.D., and Samuel Kimura, M.D., made a survey of 338 cases of uveitis, using skin and dye tests, to see whether toxoplasmosis could be identified in any of them. They found that about 15 per cent of the patients reacted to the skin tests, and in over half of them the dye test indicated the presence of antibodies (the substances used by the body to fight infection). It appears to these investigators that toxoplasmosis in the eyes is less rare than has been supposed and that it does occur in adults as well as in children.

Methyl alcohol poisoning, with its devastating effect on the eyes, a familiar phenomenon during the prohibition era, recently reappeared on

a large scale in Atlanta, Georgia, according to Curtis D. Benton, Jr., M.D., and F. Phinizy Calhoun, Jr., M.D., in a report presented at the above meeting. They described a mass poisoning, as a result of which 320 persons came to the Grady Memorial Hospital for emergency treatment after consuming bootleg whiskey containing 35 per cent of the form of deadly alcohol.

Thirty-seven of the 320 died before or shortly after reaching the hospital, and 13 died at varying intervals. So far as could be ascertained, all of the 37 became blind or nearly so before death. More than half the total number (188) recovered without treatment, but of the remaining 95 there were 62 who had more or less severe eye symptoms. The disturbances ranged from spots before the eyes to complete blindness, but there was no correlation between amount of alcohol consumed and the severity of the effects.

Vision was blurred in most cases, but nearly all cleared after a few days of treatment, Dr. Benton reported. If vision did not return to normal within six days, there was, he found, little improvement later. In most of the patients the reaction to light was diminished, and this sign proved to be a fairly accurate indication of the outlook for the victim. Those whose eyes responded least to light usually died or suffered permanent sight damage.

Cortisone, the recently discovered hormone of the adrenal gland which has proved useful in the treatment of many diverse diseases, has a place in the treatment of diseases of the eye, but it must be applied with discrimination, Drs. Thygeson and Hogan indicated in a paper read at the above meeting. They reviewed the experience of other physicians with the hormone and reported on their own experience.

Certain diseases caused by bacteria can be quickly controlled, the speakers reported, not because the hormones have any direct effect on the organisms, but because the body's defenses and its reactions to injury are strengthened. Not only are the infections overcome, but the formation of scars, with

their disastrous effects on vision, is prevented, they found.

In some types of infection, however, the hormones can do harm because they reduce inflammation without acting on the cause of it. This effect may actually encourage the infection. To meet this situation, Drs. Thygeson and Hogan advised that an antibiotic be given along with the cortisone, but it must first be ascertained whether there is an antibiotic that will affect the bacteria present. If not, cortisone treatment will probably give unfavorable results. It has been shown repeatedly that tuberculosis is aggravated by the administration of cortisone. Similarly, susceptibility to poliomyelitis and other virus diseases is increased by cortisone treatment.

Eyesight Takes Foresight

LIONS of Harford County, Maryland, provided eyeglasses for 67 school children in 1950 and 1951, reports Charles R. Hayman, M.D., deputy state and county health officer and author of the above titled article published in the June 1952 issue of *The Lion*. Dr. Hayman, who is a member of the Bel Air Lions Club, tells how Lions of Harford County, which includes the clubs of Aberdeen, Bel Air, Edgewood, Havre de Grace and Jarrettsville, participated in a joint eye program of the county departments of education and health, beginning in 1948.

Figures for 1948-1949 are incomplete, but for the two subsequent years, 4,736 school children were tested. Of these, 687 (15 per cent) failed. Of these, 360 were examined (230 by optometrists, 100 by private ophthalmologists and 30 by clinic oph-

thalmologists). These facilities, private and public, the report states, are available in Baltimore. About half the cases were examined there. The county has three optometrists, one ophthalmologist and no clinics.

There were 74 children who needed no further attention and 22 who were asked to return for re-examination. Eight received medical treatment; 253 obtained glasses, of which 186 were paid for by parents and 67 by the Lions clubs.

"The provision of glasses by our Lions clubs," says Dr. Hayman, "is a great service to the needy children in the county. Our sight conservation program, however, goes much further than this. It is an organized effort carried out cooperatively by the departments of education and health, eye specialists and the Lions clubs."

Delta Gamma at Work

AT Christmastime many years ago in Mississippi three young ladies in boarding school decided to form a fraternity—like the boys at the university. They called it Delta Gamma. In their simple schoolgirl phraseology they expressed their goal—"do good." Years have passed and Delta Gamma has grown far beyond any boundary conceivable on that day in 1873. With it has grown "do good," and Delta Gamma has become a recognized force for good in community life as well as on the campus.

Sight conservation and aid to the blind is the major project of Delta Gamma Foundation, which now administers the organization's many activities. In a recent report Mrs. Marcia Strickland of Bloomfield Hills, Michigan, chairman of the fraternity project committee, reviews 16 years of work in sight conservation. "These years have been rich in progress," she states, "and the possibilities for the future are limitless. In the beginning we planned with the needs of the blind paramount. Were we to try to read into the words and deeds of our members a trend for the future, we would predict a swing toward the field of sight conservation. Since we now know that two-thirds of all blindness is preventable, this trend would seem more than justified.

"Now," the report continues, "there is the inspiring possibility of sighted and visually-handicapped children working and playing *together* in nursery schools, and throughout the grades. This seems a most normal development, bringing with it benefits to both. To the handicapped child will

come the feeling of no longer being segregated; he will learn quickly to take his rightful place in a normal world. To the sighted child will come understanding and acceptance of the handicapped at a very early age. We heartily endorse this theory."

Each year, through the project scholarship fund, Delta Gamma has available a number of grants and loans to aid those who are preparing to teach the partially seeing, for work with preschool blind children, and training in orthoptics. During 1951-1952 the sum of \$2,050 was designated by the Delta Gamma Foundation for this work. These grants were made with the advice and counsel of a professional advisory committee on which the National Society is represented. In recognition of the far-reaching work in this field the National Society for the Prevention of Blindness expressed in a resolution "its warm commendation and appreciation to the Delta Gamma fraternity for these valuable contributions to the movement to prevent needless loss of sight."

While the project committee has the conviction that "the reward for service is the opportunity for greater service" it decided last year to give special recognition to member groups whose sight conservation work has been outstanding. These collegiate and alumnae awards covered such services as maintenance of scholarships; aid to blind students in their college work and campus activities; counselling home-teacher service to the visually handicapped; a clinic for social adjustment of preschool blind children; and vision testing programs.

Partially Seeing Children Aren't So Different!

AMIE L. DENNISON

Howard High School
Nashville City Schools, Tennessee

Visually-handicapped students succeed not in spite of their disabilities but because of their abilities. The author tells how they function quite normally in the activities of a typical junior-senior high school and make outstanding records of achievement.

MOST of us hesitate to follow an unmarked highway. None but the truly adventurous try out a new recipe on company. Maybe this basic desire for and dependency on the familiar is responsible for the hesitancy or antagonism that some regular classroom teachers manifest when confronted with the problem of teaching the so-called exceptional child along with so-called normal children.

These feelings on the part of the regular classroom teacher have not been lessened by leaders in the various fields of special education. In an attempt to aid exceptional children specialists have over-emphasized *differences*. Even while helping such children to find a place in the sun, specialists have turned the spotlight on the *disabilities* and have made these appear out of proportion to the *abilities*. First we tended to ignore the so-called handicapped as a group and to pity each exceptional child as an individual. Now we spotlight the group with our many campaigns and slogans, such as "Employ the Handi-

capped." Fine as these may be, we still have not given these children true acceptance as individuals.

As a teacher of partially seeing children who function quite normally in the activities of a typical junior-senior high school, I worry when outsiders (not the regular students or teachers of our school) speak in hushed tones of "the poor little dears!" Attitudes change when these visitors learn that the highest student-elected office in our school (president of the student council) has been held these last two years by partially seeing students; that the president of the junior class last year had only partial sight; and that although the partially seeing constitute only about one-twentieth of the school's total enrolment, one-fourth of the students eligible for the Honor Society last year were partially seeing.

I'm always afraid, however, that these outsiders have exchanged their pity for an over-glorification of the facts. What they don't seem to sense is the difference which I feel quite keenly: Those students did not suc-

ceed so much *in spite of* their disabilities as they succeeded *because of* their abilities. There is a great difference. These visually-handicapped students are accepted (either poorly or well) by their normally-seeing schoolmates, *not* because of the degree of their visual acuity but because they have or do not have the same personality traits, social graces and other characteristics that make *all* adolescents either well or poorly accepted by their schoolmates.

The most unpopular member of our group is the one who by visual acuity tests has the most nearly normal vision; but he is selfish, ego-centered, unreliable and generally immature. The most popular of our group is an extreme myope (wearing very thick lenses) who has practically no vision in one eye because of a retinal detachment; but he has a keen mind, mixes well, speaks well on his feet, and has a good sense of humor. *The keynote is that we should bend all our energy toward minimizing the handicap so that the child can develop as he would have developed had he been born with normal vision.* Minimizing, however, does not mean ignoring. It is a definite, positive approach that can be outlined, easily understood and followed. It can be carried on by any teacher if she knows where she needs to go and has a map for getting there.

After working in the regular classroom for ten years, with the partially seeing for five years, and with teachers of both the normal and the exceptional for two years, it appears to me that there are some things that might help a classroom teacher in this minimizing process. It is sincerely hoped that the following suggestions may be helpful in relation to all handicapped children,

even though they are based on work with the partially seeing child who is now in the regular classroom. Secondly, let me emphasize that everything suggested in working with the partially seeing child will prove an advantage in working with all the children in the room.

The Teacher's Feeling

One may assume an attitude, but one regularly and consistently works and acts according to the way one *feels* about something. This feeling, whether recognized or subconscious forms the pattern for our day-by-day contacts. Children seem to possess a sixth sense, devoted exclusively to knowing all about the "feelings" of the adults with whom they associate. Johnny doesn't have to be told that his teacher feels he is inadequate. No matter how good her attitude, no matter how much or how little she refers to his handicap, he knows if she feels that he "can't!" The other children know her feelings, too, and very soon reflect them in their feelings about Johnny. Children aren't as "civilized" as their socially-wise adult associates—so Johnny has his feelings hurt, all because the teacher does not actually feel that Johnny is adequate.

This feeling of a child's inadequacy may take at least two different but equally hazardous directions. The teacher may feel unsympathetic, overworked and burdened; or, she may feel overly sympathetic and overly helpful. If she can just realize that she has the task of *letting* the child be normal, not that of *making* him normal! Scrutinize any class of children, analyze each child's assets and liabilities. True, Johnny has poor vision; but look at the others, too. Marjorie is at least

four inches taller than any boy in her class. Amy is a full twenty-five pounds too heavy. Jimmy and Mary show the effects of unhappy home conditions. But each of these youngsters has many abilities that will assist him in finding his place in the world. Johnny meets people well and makes friends easily. Jimmy has a sixth sense about gadgets. Mary has a particular flair for color and line. Marjorie has a quick, penetrating mind. Amy has a sense of humor. If the teacher can know from the outset that her job is accentuating the positive (abilities) and eliminating the negative (the visual handicap), she will find herself working with myopia, hyperopia, cataract, albinism, even retinitis pigmentosa, as comfortably as she works at convincing the class that twice seven is not nineteen. She just recognizes the need and meets it! She doesn't let it distract her or get her down.

If the teacher can sincerely *feel* that an eye difficulty is offset by real abilities and works on that basis, the class, the parents and the handicapped child will be immeasurably aided in living with the condition. The parents, the oculist, the school nurse and the teacher form a team working for the complete adjustment of most visually-handicapped school children. Each has his own job and each is necessary. But of the team the teacher is the one who furnishes the clue as to how the child is going to get along in this world. She is the one who can allay fears of anxious parents—often by just failing to lift an eyebrow at a crucial moment or by not getting too disturbed when a chair is bumped or a book is knocked off a desk.

The teacher's *feeling* about a youngster is the most contagious factor in

the youngster's life. If the teacher accepts him, his schoolmates accept him, his parents accept him—and most important of all—the youngster accepts himself.

Approach through the Oculist

Springing from her feeling and very closely related to it is the teacher's *approach* to the handicapping condition. When a partially seeing child is a member of a regular class the teacher should first seek complete and accurate information concerning the difficulty. She should not allow herself to be tricked into accepting as true neighborhood gossip, the child's version, or information from the parents. All of these sources will provide interesting sidelights and often give the teacher a clue to some problem. For example, a parent may refer to "the horrible lenses that make sonny's eyes look so large." This probably has a lot to do with sonny's not wanting to wear his glasses. But for information concerning the handicap itself, *only* the attending eye specialist can be relied upon. The teacher should not hesitate to discuss with him any questions which arise in her mind. When she has had a written report and/or a discussion with the eye specialist, she may wish to add background knowledge from an authoritative book written for lay consumption.

Whatever the diagnosis and the prognosis the teacher must not be afraid of them. She can learn to work quite sanely with the child no matter what the prognosis. It will reassure her to know that what she does with him is not going to make his eyes worse. He was born with all of his potentialities and she can neither add to nor take away from them. Naturally



Nashville Tennessean

The two boys in this photograph were seniors in Howard School last year. Both served as vice-president of the Student Council. Both served as president of the Student Council. Both were on the school newspaper staff. Both were active in the dramatic or speech arts department. Both need glasses for close eye work. Both are freshmen in college this year. One is classified as a normally seeing individual, the other as a partially seeing student. Can you pick the so-called handicapped one?

needless and avoidable accidents are the exception. She should know also that wearing glasses neither weakens nor strengthens eyes (except when prescribed to educate or re-educate an eye, as in post-injury cases or strabismus). Glasses are prescribed as an aid to clearer and more comfortable vision.

Next the teacher will want to visit the child's home to discuss his problems with the parents and solicit their help and cooperation. By establishing an easy, friendly relationship both parents and child soon realize that he and his handicap are acceptable to the teacher. This relationship frees the teacher to treat the child as normal, without undue concern over his handicap. Often parents of such children have a basic guilt feeling and are

doubtful as to the school's approach. An early visit to the home, if handled skillfully, can put an end to such doubts.

In the Classroom

Each teacher has her own particular knack for becoming acquainted with her class and helping the children to know one another. Whatever her method, it is not difficult to let the other children know that Johnny's eyes (not Johnny) are a little different just as Mary's height is a little above average, or as Bill's weight is more than that of the other boys in the class.

We are familiar with today's sane approach to sex education: Answer questions simply and straightforwardly when the information is needed or re-

quested. If this works in one area, why not in another? There is no need for being mysterious or hush-hush about the fact that Johnny needs glasses "to see the things you and I see without glasses." If the children get this feeling from the first they are not concerned when Johnny moves closer to the chalkboard or bulletin board, or doesn't join in rough-and-tumble play. Even more important, Johnny isn't concerned either. As the year's work progresses and various materials and procedures are adjusted to his needs, the other children may be curious. Encourage them to ask questions and let Johnny answer if he can. In handling special materials and equipment which may be indicated in his case, let every child understand about them, even use them for a time.

As a result of this matter-of-fact but pre-planned approach the teacher, the class and the handicapped youngster recognize the problem, face it, and adjust to it.

Teacher's Working Habits

A day does not end in frustration and exhaustion just because it is a day of hard work. There are always contributing factors. Often without realizing it the teacher's working habits and practices contribute to her own fatigue and to the children's restlessness. The following suggestions may be used as a check-list in correcting such practices:

1. Avoid having glass tops or high polish on desks and other working areas. They create glare and discomfort.
2. Avoid leaning against window sills while talking to class. When children have to face the light they may suffer extreme fatigue.
3. Avoid cluttering wall space with glass-covered pictures. Glare and reflection result, making pictures indistinct.
4. Avoid creating a shadow on workspace by bending over a child while working with him.
5. Make the most of the room's illumination. Adjust shades frequently during the day for maximum comfort. Keep luminaires clean; replace bulbs or tubes when efficiency is too low. Keep all windows clean. Avoid cutting down natural illumination with draperies, art work, objects on window sills, etc. Use artificial illumination to supplement daylight when necessary—this is good practice.
6. Arrange room for most comfortable seeing conditions. Never have children face the light. See that light falls without shadows on working area. Usually light coming over left shoulder is best for right-handed children. Notice left-handedness and make sure light falls over *right* shoulder in such cases. Make *no* use of the space between and under windows.
7. Utilize wall areas for the most comfortable seeing. Write (manuscript is better) legibly and large on eye level of children when using chalkboard. Watch for uncomfortable values of colors in display materials. Sometimes a color is not uncomfortable until used *en masse* or combined with another of the same high intensity. Select clear pictures, avoiding those with too much detail. Eliminate clutter and crowding. A "busy" wall confuses and causes fatigue. Process materials by

outlining with India ink the chief figure or object expressing the key to the picture's story.

8. Provide easily-seen materials to supplement text material. A box or file of enlarged maps, drawings, charts and the like can be prepared by upper grade students with art ability. Make maps and figures of paper mache, plasticine, or salt and flour mixture. Collect inexpensive "jig-saw" maps. Choose large maps and globes with as few details as possible according to the requirements of the immediate learning task.
9. Provide eye-rest periods. Develop awareness of situations that may be worked out quite easily and naturally. For example, let a good speller give oral review to partially seeing child while rest of group works with teacher. Suggest that the partially seeing child be the one to report on a radio newscast or drama such as "Cavalcade of America" or "Mr. President," rather than on a news item from the evening paper or on a new book. This emphasizes use of one's ears as well as of other sense organs. Plan day's schedule so that *all* children may have eye-rest periods. Alternate listening periods, sharing times, creative or free-hand art work, rest periods, oral drills, planning sessions and recreation hours with periods of close eye work. This makes a more interesting day for both teacher and class.

General Habits of the Child

The partially seeing child especially needs certain basic habits in addition to the usual good habits we try to help

all children establish. Since the eyes are a working part of the body, all children need to maintain the highest possible health standards. The partially seeing child particularly needs to learn the best nutritional habits. His posture must be watched; it is natural for him to lean forward, drop the head and slump the shoulders in an effort to see more clearly. If he wears glasses, he should learn how to keep them clean. Once the "feel" of clean glasses is experienced the child is more apt to keep them that way. Keeping the glasses in adjustment is difficult, especially for small, active children, but it is important, particularly in cases of astigmatism. Each child must be taught how to keep the lenses free of scratches by protecting them in purse or pocket, and placing them on desk or table with lenses up.

In addition to these health emphases, the partially seeing child needs to develop and use his sense of hearing. He should be taught to think out problems. Remember the days of mental arithmetic? Arithmetic isn't the only thing that can be mental!

Work Habits for the Child

When the teacher has the proper feeling for a partially seeing child, when she understands his particular problem, when she has established a friendly relationship with the home, and when the child feels accepted there is no difficulty in helping him learn to use the work habits best suited to his needs. He sits or stands where he can see most comfortably the activity of which he is a part; adjusts his desk-top or book-rest for the best reading position and the best posture. He learns to recognize and avoid glare areas; to choose suitable materials.

Knowing that Johnny is an intelligent child and that he will read, we do not attempt to teach him that he must not read. Rather we try to help him learn what kind of type, line spacing, margins and paper are most easily read.

Less Common Eye Difficulties

The majority of partially seeing children found in a regular classroom fall into certain general classifications which will be outlined briefly. There will, of course, be individual variations.

For example, one may find a myope whose behavior does not correspond with the pattern here given; but roughly one may expect these things from the particular types listed. A few hints are added merely as a point of departure for the teachers' experimentation in working out the happiest situation for herself, the partially seeing child, and the class.

Myopia

The myopic or nearsighted child usually wears his glasses without much urging. He realizes that they make his eyes look smaller, but he sees so much more with his correction than without it that he chooses to wear the glasses and see. School work is no problem to his eyes. He feels no particular strain, since he is able to work for extended periods at close range. He may have a tendency to study or read to the exclusion of outdoor interests and activities. If so, he needs to be encouraged to establish interests or hobbies that will get him outdoors. The nearsighted child is apt to stoop and acquire a very poor posture. This can be obviated by consistent use of book rests or adjustable desk-tops. He should learn to do the adjusting automatically.

The teacher should not take responsibility for allowing myopes to participate in physical exercise which involves heavy lifting, possibility of severe body blows, or head injuries, since the danger of retinal detachment is so great. Only when the oculist definitely gives permission should the child be allowed to participate in such activities. Walking and swimming (without diving) may be undertaken safely.

Hyperopia

The hyperopic or farsighted child is the one most apt to be overlooked. Even when his eye condition is recognized, this handicap is often misunderstood. Several misconceptions arise from trying to compare the myopic with the hyperopic eye. Since a myope often sees clearly at close range, we expect a hyperope to see clearly at a distance. This is not a true picture. The farsighted child does not necessarily see well at a distance. If he does, it is at the expense of excessive accommodation. The normal eye is at rest when seeing an object at a distance of 20 feet or more. Not so with the hyperopic eye; it must accommodate continuously. This results in fatigue and restlessness. Thus the hyperopic child may not be studious and may have a short attention span. Realizing this the teacher will obtain better results if she assigns only short periods of close eye work with frequent intervals of rest than if she attempts to hold the child too long at close work.

Cataract

The congenital cataract found in children is of two types, according to its location in relation to the pupil. A nuclear or central cataract is in the

center of the pupil. In a bright light the pupil is contracted; thus, light rays cannot penetrate. In less light the pupil becomes larger, leaving around the cataract a space through which light rays may penetrate. Therefore a child with central or nuclear cataract does not want to sit in the place of brightest illumination. But a cataract in the rim or periphery of the pupil is another story. A contracted pupil closes out the cataract and takes away the attendant blurring. When there is a bright light, its rays reflect against the cataractous opacities and cast too much uncomfortable glare on the retina. Often a child with this type of cataract shades his eyes to see best.

Children having congenital cataract are usually nervous, often showing a dislike for doctors, ether and hospitals. This may be traced to the needlings performed when the children were very young. Often the child is sensitive about his glasses and much concerned over the fact that they make his eyes look very large. Since congenital cataract is an inherited difficulty, this attitude may be a reflection of the family's attitude toward glasses.

Nystagmus

Nystagmus or involuntary movement of the eyes is not as serious a handicap to seeing as it might appear to be. It does preclude sustained, clear, accurate vision. However, if it is the only difficulty (usually it is secondary to another eye condition) the teacher need not be too concerned about adjusting her procedures and schedules.

Albinism

The albino is easily recognized because of his lack of pigment. Frequently he has nystagmus, in which

case the teacher will understand that extremely close eye work, such as tracing, cannot be performed accurately. The albino has photophobia, extreme sensitiveness to light, which accounts for his squinting and his peculiar facial expressions. Tinted lenses may be prescribed to relieve the discomfort; the child and his parents should be encouraged to discuss this possibility with the ophthalmologist. Frequently a correction does not improve the albino's visual acuity, but the comfort of the tinted lenses, plus the improvement in facial expression, certainly justify the wearing of glasses.

For some unexplained reason the albino seems to run to extremes in personality. Fortunately, he is most frequently a neat, orderly and immaculate child.

Monocular Vision

Monocular or one-eyed vision, the result of injury, enucleation, uncorrected strabismus, retinal detachment and other factors, is not serious when compared with the above-listed difficulties. Monocular vision is not as balanced as binocular vision, but the child with one eye can learn to compensate, and to adjust seeing or looking conditions for the sighted eye. The teacher works with him on the sighted side.

Optic Atrophy

Atrophy of the optic nerve (from birth injury) is not common but experience with such a case emphasizes an important point—that rules and expected conditions often do not hold true. For example, a child with an atrophied optic nerve may not profit from large print on a chalkboard. He may need to write in very small script.

He may sit at a desk and follow the chalkboard discussion but be lost when he moves from his desk to the chalkboard for work. He may read accurately the license plate of a car some distance away but fail to recognize or even to be aware of some child passing in the hall. His difficulty may be in range or field of vision. Once he has an object in focus he may see fairly well, but he may never be expected to find something without a

great deal of minute searching. He does not have sweep vision. This type of child especially needs help.

If the teacher has the willingness to observe and to interpret without hurriedly jumping to conclusions, she need not be afraid of the partially seeing child she finds in her class. After all, he is not so different. He is just another youngster trying to find acceptance in an adult world. The teacher can help!

Sight-Saving Month Alerts Public

"NEGLECT—No. 1 Cause of Blindness" was the theme used in September for NSPB's immensely successful third annual observance of Sight-Saving Month. So far, more than 5,000 requests for information on eye care have been received from the public as a direct result of this campaign. This figure represents approximately three times the number of responses received last year.

The campaign sought to increase public awareness of the need for good eye care and sight conservation. Radio and television scripts, films and transcriptions prepared by NSPB were used by many hundreds of radio and TV stations. Feature stories were widely used by newspapers. Car cards were distributed to railroad and bus companies in the New York area, Atlanta, Detroit and San Francisco. Again this year the endorsement of the national Advertising Council helped assure widespread radio and TV publicity.

A notable feature of the campaign was its endeavor to warn against eye

neglect without using scare techniques. The following quotes from station break announcements illustrate this:

"A diamond is the most precious jewel there is—but all the diamonds in all the world cannot buy you a second pair of eyes. . . ."

"No refunds. No exchanges. Take care of your eyes. Only one pair to a customer! . . ."

"Sticks and stones, pop-guns, bows and arrows—are these inexpensive playthings? Well, not if they cost a child his eyesight! . . ."

The many letters received by NSPB from persons who had heard the radio scripts or seen the TV films revealed the public's urgent need for sound eye health information. Some excerpts follow:

"Is there a chance to dissolve the cataracts on my eyes?"

"I have one eye turned out. It has been blind since childhood. My parents refused to have an operation on it when I was a child."

"I see spots before my eyes and colored halos around lights, so I would

like pamphlets explaining these conditions."

"I have cloudy vision. Would eye exercises help me?"

"My wife has glaucoma. Is there any cure for glaucoma?"

"What brand of sunglasses is least harmful to the eyes? Should you or

not wear sunglasses all the time you are in the sun? Should you wear them when driving at night?"

"I am gradually losing my sight. The eye specialist gave it a name I do not understand. I cried so much when my aunt passed away I had to start wearing glasses."

How Fast Can You See?

AT least 20,000,000 motorists have below-average eyesight, and 3,000,000 of them don't even know it, according to Paul W. Kearney, author of the above titled article published in *Esquire*, June, 1952. Even those who do know it and wear glasses may not be safe drivers because they may be suffering from glare blindness, tunnel vision, or faulty depth perception. Nearly half the motorists have never had an eye test because they received their original permits before their states required it.

Only 11 states test for tunnel vision, only nine for faulty depth perception, and only two for glare blindness. But 37 states test for color blindness, which almost never causes an accident.

Studies of accident repeaters show that 20 per cent of our drivers cause 80 per cent of our accidents. New York re-examined several hundred drivers with four accidents apiece, and found that more than half of them had tunnel vision. California found 321 repeaters who rated dangerously low in night vision. The National Safety Council reports that 55 per cent of all traffic fatalities occur after dark, when only one-third of the day's driving is done.

Mr. Kearney points out that there are tests for these visual failings, but

they cost money and the public has not demanded them. The New York University Center for Safety Education has developed four pieces of light-weight testing apparatus which measure acuity, tunnel vision, depth perception and glare blindness. They sell for \$59.50. Over 300 have been sold, mostly to high schools which give driving courses.

High schools are an ideal place to spot the visually subnormal, and 8,000 schools now give driving courses. But, besides 2,000,000 new drivers every year, there are 60,000,000 others who need periodic re-examination. The aim of safety officials is not to take away licenses, but to show drivers how to compensate for their visual deficiencies.

Re-examination of repeaters and negligent drivers is now compulsory in Maine, Oklahoma, the District of Columbia, Wisconsin and New York. Iowa and North Carolina demand new tests for license renewal. Pennsylvania, California, New Jersey and Connecticut insist on re-examination after accidents, although in some cases they have no specific law to back them up.

The first step is to concentrate on repeaters. If resources become available, safety officials hope to extend the program to all drivers at two- or

three-year intervals and give thorough tests to every new applicant. But all these plans require money and state legislatures will not support them without public pressure. The next move in the safety drive, concludes Mr. Kearney, must come from our civic groups and automobile clubs.

Charity a Chain Reaction

"Private charity is like a chain reaction. Once started, it never stops," said Crawford H. Greenewalt, president of the E. I. du Pont de Nemours & Company, in a recent speech at Girard College, Philadelphia. "The good that is done by example and precept," Mr. Greenewalt continued, "breeds in the recipient the same responsibility, desire and obligation. It is like a wave of good will and comes finally to be a national rather than an individual attribute.

"Our country has been charitable to an extent that is unheard of in the outside world. What more generous national act could one conceive than the Marshall Plan, however one may value its results? Where in Europe will you find private citizens devoting their resources so generously to the service of others less fortunate than themselves?

"I have said before that our national characteristics are the summation of what we feel and do as individuals. And it seems to me that whatever spiritual stature we Americans have is due to the fact that with us charity in its highest sense has been regarded as an obligation and as an opportunity."

1953 NSPB Conference

**Hotel Statler, New York City
March 18, 19, 20, 1953**

Dr. Berens Receives U. S. Air Force Award

Dr. Conrad Berens of New York City was presented with the silver wings of an Air Force flight surgeon at the annual meeting of the Aero Medical Association in Washington, D. C., March 19, 1952. Dr. Berens, a member of the National Society's board of directors and executive committee, was a pioneer in aviation ophthalmology and has made outstanding contributions to this specialty for more than 35 years. The award was made by Major General Harry G. Armstrong, surgeon general of the Air Force, then president of the Association.

Dr. Berens' publications in the field of aviation ophthalmology have spanned the years between the two world wars and continue to the present. In 1920 the War Department published "Aviation Medicine in the AEF" which contains the only officially published account of activities of medical officers assigned to aviation medical research duties in France during World War I. Dr. Berens' contributions on ophthalmology in this volume were based on the examination of thousands of aviators and front line observations of pilots in combat.

An article published in 1919, "The Effect of Altitude on the Eye," described some of Dr. Berens' pioneer work and is one of the first accounts of aviation medical achievement to appear in the lay press. As editor of the *Quarterly Review of Ophthalmology*, he initiated a new department in the March 1951 issue containing abstracts of significant articles on aviation medicine published in journals throughout the world.

How Louis Braille Lost His Sight

THIS year France is celebrating the centenary of the death of Louis Braille, whose name designates the invention of an alphabet for the blind used throughout the world. To prevention of blindness workers the eye injury that blinded Braille at the age of three years is of particular interest.

The story is told in the March, 1952, issue of *The New Outlook for the Blind*, which is devoted to a condensation of the life of Braille by the French author, Jean Roblin.

The workshop of Braille's father, a harness-maker, was a fascinating world to the little boy. Although he had been forbidden to go near his father's workbench, where there were sharply pointed awls, and knives as keen as razors, one day temptation overcame him. He took hold of a knife.

"The child picked up a piece of leather," the account runs, "and tried to cut it, the knife in hands still too chubby to be skillful; the leather resisted, then yielded, the blade slowly cut in and took out a piece. Suddenly it slipped and plunged violently into the child's eye; the pain was so sharp that Louis began to cry; blood gushed down his face."

His cries brought his panic-stricken parents running. The father took the boy on his knees, asked for white linen and fresh water and bandaged the injured eye. An old woman of the vicinity who, it was said, possessed healing secrets, brought lily-water. A compress was prepared, applied, and, as if by a miracle, bleeding stopped.

A book by Dr. Turck used at that time recommended the following treatment for eye injuries: "Light should be prevented from entering the room, and the eye should be covered with compresses soaked in cold water. Bleeding of the arm, applications of leeches around the injured eye, diet, and a dose of calomel are the methods usually employed in this case and in all those in which the eye has received a rather serious injury."

Dr. Turck added a strong admonition to consult a doctor. There is no doubt that the parents asked one of the village doctors to see the injured child; but the therapy ordered was powerless against a deep wound. Conjunctivitis developed; the eye became red and the inflamed eyelids discolored, as if from a blow. At this stage, the account says, careful hygiene could have saved the child's sight. But without proper medical aid, the infection became purulent. Through contact with his hands, the other eye became infected and each day his vision grew dimmer. Then came the night which was to have no end. Louis Braille was blind. Although his parents took him to an oculist, nothing could be done.

But the little boy who had lost his sight within a week's time lived out his life to give to the blind a system of writing, which enables them not only to read and write, but also to transcribe the most complex musical scores. Louis Braille certainly deserves to be included among mankind's benefactors.

AROUND THE WORLD

AFRICA

Blindness in Nigeria—The commonest causes of blindness in Southern Nigeria are cataract, glaucoma and optic atrophy in that order of frequency, according to Dr. G. E. Dodds in a letter published in the *British Medical Journal*, March 15, 1952. Reporting cases of blindness seen at the Lagos Eye Clinic, Nigeria, from 1946 to 1949, Dr. Dodds says, "This investigation shows definitely that no single disease can be quoted as a main cause of blindness in Southern Nigeria." The clinic deals with 7,000 new cases yearly and 20,000 attendances. Patients studied included 356 who were blind in both eyes and 948 blind in one eye. A considerable proportion of the blindness could be prevented or cured, Dr. Dodds says.

In a letter in the June 7, 1952 issue of the above journal, Dr. F. H. Budden discusses blindness in Northern Nigeria, saying that trachoma and onchocerciasis, which are relatively uncommon causes of blindness in Lagos, are important causes in Northern Nigeria. His surveys show trachoma to be the commonest cause of blindness and onchocerciasis the second commonest cause.

Dr. J. Graham Scott, in a letter to the same journal, the August 2, 1952 issue, says that his findings are in agreement with those of Dr. Budden that in Northern Nigeria the commonest cause of blindness is trachoma, and

the second commonest is onchocerciasis. Dr. Scott found more than 10 per cent trachoma and more than 50 per cent onchocerciasis (of whom one-third had ocular lesions) in 500 Nigerian soldiers.

SOUTH AFRICA

New Classes for Partially Seeing Children

—The establishment of classes for partially seeing children in the Boys' School for the Physically Handicapped at Diskobolos, Kimberley, was recently announced by the school's principal, V. H. Vaughan. Mr. Vaughan visited the National Society in 1947 in connection with his job at the School for the Blind, Worcester, Cape. He was later transferred to the school in Kimberley which was established two years ago.

ENGLAND

New Research on Eye Diseases

—The Royal Eye Hospital League of Friends, England, announced at its annual meeting that the League's executive committee regards the endowment of a research chair of ophthalmology as the first charge on the League's funds, according to a report in the July 15 issue of *The New Beacon*. A quarter of the £100,000, which is the sum needed to put the endowment on a firm basis, has so far been collected. It was supported entirely by voluntary contributions.

Largely as a result of the support given research workers by the League, the report states, some hospitals have ceased to give treatment for eye diseases. Sir Cecil Wakely, president of the Royal College of Surgeons, said at the meeting that the intensive work on the sulfonamides and penicillin had led to such satisfactory results that two large units, comprising 78 beds in one hospital dealing with trachoma, and 60 beds in another dealing with ophthalmia neonatorum had been closed down.

Drivers with Defective Vision—The council of the Faculty of Ophthalmologists in England recently issued a statement urging doctors to consider the dangers of visual disabilities in drivers, according to a report in the July 19, 1952 issue of *The Lancet*. The statement says, in part, "Although the legal restrictions for driving refer only to defects in central vision there are potential dangers in other visual defects, such as night blindness and gross restriction of the visual fields. Patients suffering from such defects should either be warned about the need for care in driving, or if the defect is serious they should be emphatically advised not to drive at all."

Commenting on the statement, J. S. Grant Robertson, Hon. Press Officer of the Motor Schools Association, London, states in a letter published in the August 2, 1952 issue of *The Lancet* that the Association thinks that the fact that a candidate for a driving test wears spectacles should be recorded on the driving license. Mr. Robertson cites two cases in which elderly people, after being involved in accidents, were convicted of dangerous driving and had their licenses sus-

pended until they passed a driving test. Both were found to have defective vision and were referred to ophthalmologists who advised them to give up driving. The advice was taken. But in another case, a candidate who failed the test because of defective vision admitted that she knew she had bad eyesight, but said she did not like to wear spectacles. She did get spectacles, took the test a month later, passed (with spectacles), and has not worn them since.

Ophthalmological Congress—The annual congress of The Ophthalmological Society of the United Kingdom will be held at the Royal Society of Medicine, 1 Wimpole Street, London, W.1, April 23, 24 and 25, 1953. The presidential address will be delivered by Mr. Alex. MacRae. The subject for discussion, "The Scope of Antibiotics and Chemotherapeutic Agents in Ophthalmology," will be opened by Professor Arnold Sorsby, Professor Robert Cruickshank and Mr. Derek Ainslie.

HAWAII

Report for the Year—The first glaucoma clinic in the Territory of Hawaii was opened at Queen's Out-Patient Clinic in June, 1952, according to the Annual Report for 1952 of the Bureau of Sight Conservation and Work with the Blind. The Bureau's responsibility, the report says, is in case finding, to get patients to attend the clinic and do any follow-up work necessary.

Under the school program in the Territory a total of 112,736 pupils had their vision tested in 1952. Of these, 11,288 had visual defects. Medical follow-up has been completed in 84.56 per cent of these.

There has been a decrease of 15

since 1942 of the number of pupils eligible for sight-saving classes, the report states. This year only 57 students out of the 11,288 considered were approved by physicians as eligible for sight-saving classes. The trend toward a lower number of severe visual defects may be accounted for by early detection and correction of visual defects, use of miracle drugs, possibility of better medical care, and the better general health of Hawaii's children today.

Artificial lighting has been obtained in all schools in Hawaii through the combined efforts of the community, the PTA, school officials, the county government and other agencies.

Ambulatory eye clinics organized in rural communities were attended by 758 patients, an increase of 201 over last year. Assistance was given to a total of 893 patients at the two weekly out-patient eye clinics held in Honolulu hospitals.

Prevention of blindness through education is a vital part of the Bureau's endeavor as evidenced by increasing numbers of requests for information on eye health. During the year, 33 news articles or 20 feet of newspaper space was given to the Bureau's activities. Spot announcements on dangers of firecrackers, Sight Conservation Week, and Employ the Physically Handicapped Week were provided to all radio stations, which, with the radio interviews presented, reached an estimated listening audience of 185,000. Audiences at the Bureau's booths at nine county or community fairs are estimated at 225,900. Films were shown to an audience of 9,969. The Bureau's sponsorship of Wise Owl Clubs in industry has been most successful.

I.E.S. Conference

The National Technical Conference of the Illuminating Engineering Society held in Chicago, September 8-12, 1952, featured sessions on preservation of eyesight and a review of light sources.

President S. G. Hibben, in his annual report to some 1,000 members and guests of I.E.S., stressed the need for directing more Society activity towards the conservation of vision. Urging an expansion of membership to strengthen the Society's influence, Mr. Hibben commented on the increased burdens placed upon the seeing organs in a civilization that uses vision with an increasing tempo. In emphasizing the importance of research for the procurement of fundamental lighting knowledge, President Hibben stated, "We still have much to study, much to digest and appraise, much to search out, beginning with the physiological functions of seeing and carrying through to the research work on better instruments, more perfect sources of radiation, better coordination, the logic of specific applications, and undoubtedly better methods of teaching."

Dr. J. N. Aldington, director of research, Siemens Electric Lamps and Supplies, Ltd., presented "Lamps and Lighting—A Vision of the Future." Dr. Aldington, who is an eminent British lamp engineer and scientist, examined the development possibilities in the fields of incandescent lamps, sodium and mercury vapor lamps and in fluorescent light sources. He concluded that "while in the tungsten filament field no major advance appears likely it is considered that the possibilities with more selective radi-

ators have not been exhausted. In the case of the sodium lamp natural laws appear to suggest that development has reached nearly the optimum while further potentialities exist in the case of mercury lamps of various types. The fluorescent lamp is peculiarly a case where the field should be constantly re-examined."

Another Warning Against Tinted Lenses at Night

Again the question—should tinted lenses be worn for night driving? An emphatic "No" is the answer given in the July, 1952 issue of *Guildcraft*. In an article posing this question, the magazine quotes Hedwig S. Kuhn, M.D., secretary of the Joint Committee on Industrial Ophthalmology of the A. M. A. and the American Academy of Ophthalmology and Otolaryngology, who says, "People who think they see more clearly and with less glare while using yellow glasses at night are victims of an optical illusion. They have stated that they see better, but when their visual acuity is actually measured while wearing yellow glasses, it has been found that they don't see as well."

Another member of the committee, Col. Victor A. Byrnes of Randolph Field, Texas, says, "The use of yellow lenses for night driving jeopardizes public safety. Any reduction in brightness of the road as seen by the driver effectively decreases the distance he can see ahead of his car. Yellow lenses do not decrease glare because the brightness ratio between one's own headlights and oncoming headlights is not changed."

Dr. Deane B. Judd of the National Bureau of Standards, Washington, D. C., says, "We especially regard the

indiscriminate sale of yellow goggles for night driving to the general public to be dangerous because they may render the red and green traffic lights indistinguishable to about two per cent of the male population who are partially color-blind in the red-green sense."

David M. Baldwin, director, Traffic and Transportation Division, National Safety Council, believes, "The difficulty appears to be that while the introduction of tinted lenses may reduce the amount of glare reaching a driver's eyes, his vision is reduced at the same time. The loss of vision is continuous, for it is not logical to expect that a driver will put on his tinted glasses only when a vehicle is approaching, and take them off as soon as the road is clear."

Guildcraft is to be commended for this fine presentation and also for its editorial stand expressed in "A Higher Allegiance," which appears in the same issue. This editorial says, in part, "... if there were no higher allegiance than to business profits it would just be good sense to promote the sale of tinted lenses for night driving. Yet the Guild's sunglasses pamphlet—distributed through its members—carries this statement printed on every copy:

*For Safety's Sake—never wear any
kind of dark glasses for night driving.*

This word of warning is not hidden in the text nor given the 'fine print' treatment. It stands by itself, conspicuously, on the back cover of the folder where it can scarcely be missed. Business? Yes. Profits? Yes. We all want them. But there is a higher allegiance that is an effective force in the Eye Care field. . . ."

NOTES AND COMMENT

• *Mrs. Matlock Honored*

Mrs. Ernest K. Matlock, who developed Braille and sight-saving classes in Detroit's public schools, has recently been named one of the Women of Achievement of Detroit by the Detroit Historical Society, and as such will have her portrait hung in the Detroit Historical Museum from mid-January through February, 1952.

The planned exhibit of portraits of 160 women leaders in Detroit's cultural, industrial, economic, scientific, professional and educational life will be accompanied by a program of community participation in which career counseling for high school and college girls will be offered and talks given to club women.

Mrs. Matlock is a board member of the Detroit Society for the Prevention of Blindness and a former member of the editorial board of the *SIGHT-SAVING REVIEW*.

• *Dr. Sheard Appointed Dean*

Charles Sheard, Ph.D., of Rochester, Minnesota, a member of the Board of Directors of NSPB, has accepted the position of Dean of the Los Angeles College of Optometry. Dr. Sheard taught physics at Ohio State University from 1907 to 1919, serving as director of applied optics after 1914 and thus supervising the inauguration of the instruction in optometry at that university. From 1919 to 1924 Dr. Sheard was with American Optical

Company, and from 1924 to 1949 served as director of the division of physics and biophysical research at Mayo Clinic. Since 1949 he has been a Distinguished Lecturer in the department of ophthalmology, Tulane University. Since 1947 he has taught ophthalmic optics at Rochester, Minnesota, Junior College in the first two-year course set up in this country for training opticians.

• *Illinois Activities*

In Chicago's public schools more than 240,000 children have had their eyes examined under the visual screening program, according to the 1952 report of the Illinois Society for the Prevention of Blindness. Of these almost 10,000 were already wearing glasses and another 15.8 per cent were found to need professional attention for their eyes. There were 126 children who were considered as needing special facilities for the partially seeing. Of these 28 were approved for classes for partially seeing and 39 remained in the regular classroom. Decision on the remaining 59 is still pending.

The school visual screening program is guided by 35 joint committees of ophthalmologists and optometrists scattered throughout the state.

Other important activities of the Society described in this report include a vigorous campaign for federal legislation to prohibit the interstate shipment of fireworks in violation of state

laws. A suitable bill, H.R. 4528, was introduced in 1951 and went to the House Rules Committee early in March 1952; but not until June 17, 1952 did a favorable rule come through so that the bill could have been called to the floor of the House for action. H.R. 4528 was never called because of the pressure of many things that seemed more important in congress. However, the fight will be continued in the next congress. Supporters of the bill are proud of their success so far.

• *Vision Screening to Start*

Vision screening in the elementary grades of the Grand Rapids Public Schools, Michigan, will be begun for the first time this school year, according to Mrs. Robert Breed, executive secretary, Grand Rapids Association for the Blind and for Sight Conservation. The screening will be preceded by an eye health educational program in the classroom.

Under the plan school nurses will act as consultants to the teachers. They will assist in the instruction for testing techniques, re-check children found to have visual defects and be responsible for any follow-up work.

• *Camera from Sheep's Eye*

A sheep's eye has successfully been turned into a camera, according to recent news reports. Ralph P. Creer has succeeded in capturing on photographic film a sheep's view of the world by using an eye taken from a sheep as a camera.

Mr. Creer is a medical motion picture photographer for the American Medical Association. He gets the sheep's eye from the stockyard less than an hour after the sheep has been

killed and quickly prepares it for camera work. If he waits too long, the lens which is a soft protein substance becomes cloudy and useless. He cuts a hole in the back of the eyeball, carefully keeping the fluid inside intact. Then he fits the eyeball into a special gadget that permits him to place a piece of photographic film against the back of the hole and a shutter in front of the lens. The lens is actually a so-called "fast one," which means that with very little light and "slow" film a recognizable image can be taken. Mr. Creer says his pictures are not very good by photographic standards; all he gets is an image of some flat object held not too far away from the camera. Among his pictures are words on a box, a cartoon and the eye of a man seen through the eye of a sheep.

Because the eye is dead, Mr. Creer cannot operate either the iris or the muscles that change the focus of the lens. Without the iris, which controls the amount of light admitted to the eye, he cannot take a picture of a three-dimensional subject. Any object beyond or in front of a certain point in the field is not in focus.

In his next experiment Mr. Creer plans to collaborate with a biologist in an attempt to keep the sheep's eye alive so that he can take pictures of all kinds. He makes no claim that the pictures he takes are what the sheep sees. "We have to remember," he says, "that there is a brain involved. Anything can happen then."

• *Vienna M.D. at Eye Bank*

Dr. Angelos Dellaporta of the University Eye Clinic of Vienna has arrived in Buffalo to head the clinical and ophthalmological research program of the Buffalo Eye Bank and



A realistic approach to eye safety problems was observed at a recent meeting of the maintenance department safety committee, Phosphate Rock Division, Davison Chemical Corporation, Bartow, Florida. The committee members, each wearing an eye patch, are, left to right: J. H. Singleton, G. L. Harville, chairman; Garrett Swindal, secretary; F. D. Guderain, W. E. Gillooley, and G. A. Hicks.

Research Society, Inc. The Buffalo organization was founded by the Lions Clubs of Western New York, which receives financial assistance from the Lions Blind Seal Committee, Lions Clubs, the general public, and the Community Chest.

Dr. Dellaporta will also lecture in ophthalmology and teach laboratory methods and ophthalmological and pathological research methods at the University of Buffalo School of Medicine, which cooperated with the Eye Bank in bringing him to America.

• Tighten Safety Code

Drivers engaged in interstate commerce must have vision of at least 20/40 (Snellen) in each eye, either with or without glasses, and a form field of vision in the horizontal meridian of not less than a total of 140°, according to the latest revision in the Motor Carrier Safety Regulations of the Interstate Commerce Commission which became effective July 1, 1952. Drivers must also be able to distinguish colors red, green and yellow. One-eyed drivers have been prohibited from driving motor vehicles operated by carriers subject to these regulations since the inception of safety regula-

tions by the Commission. The regulations also require periodic physical examinations of drivers. Every driver must be re-examined at least once in every 36 months and certified by a licensed doctor.

• Ask the Man on the Job

A new idea for arousing the interest of employees in safety is described in the 1952 Annual News Letter of the National Safety Council's Industrial Sections. Monsanto Chemical Company has set up job safety analysis contests in its various plants. Entries are job analyses by workers with a view to making their jobs safer.

"The contests," it is reported, "have the double value of getting employees to think constructively about their jobs from the standpoint of accident prevention and of unearthing some very good ideas for ways of correcting existing accident hazards. It is often said that no one knows the hazards of a job better than the man who does it—but rarely have the implications of the statement been so clearly acted upon.

"Before the contest was started, all plant personnel attended meetings at which job safety analysis was ex-

plained. Supervisory personnel continued instruction for the next 30 days, using sample job breakdowns as an aid.

"Entry blanks with detailed instructions were distributed to all eligible personnel. The entries were judged on the basis of three points. Each point was weighted so that the total entry could receive a numerical score. The completeness of job analysis was valued at 30 per cent; the thoroughness of safety analysis at 60 per cent; and any drawings, diagrams or designs which were appropriate to the problem were weighted at 10 per cent. Prizes were awarded."

• *Eyes are Safe at Upjohn*

Youngsters from six to fifteen years of age are receiving basic training in eye safety at Harold Upjohn School, Kalamazoo, Michigan. The Lions Club of that city has supplied eye pro-

tection for all pupils to use when they are in the school workshop. Children who wear glasses all the time use plastic shields over their glasses; the others wear regular safety spectacles.

"Before the children began wearing eye protection," reports Mrs. Alta Sodergren, Kalamazoo teacher of partially seeing children, "a period was spent with each group explaining and discussing eye hazards in the shop, the value of good vision, and the precautions that may help to reduce eye accidents.

"The children wear the eye protection very willingly. As soon as they enter the shop they go to the cupboard, take out their glasses and shields and wear them until they leave the class. The shop teacher and her practice teachers also wear them."

Lions Clubs throughout the country are doing much to aid school and community vision programs.



Kalamazoo Gazette

Mrs. Alta Sodergren, left, and Mrs. Pauline Groby, teachers at Harold Upjohn School, Kalamazoo, Michigan, with group of pupils in the school shop. Eye protectors are provided by the local Lions Club.

CURRENT ARTICLES

Effective and Safe Radiation of the Anterior Segment of the Eye.

E. B. Hague. *American Journal of Ophthalmology*. Vol. 35, Part I, pp. 629-636. May, 1952.

The author discusses the application of various radioactive substances to the anterior segment of the eye, particularly from the standpoint of safe but effective therapy. Depth dose curves of radium and radium-D were calculated from photographic measurements. Depth dose curves of radioactive strontium and of various X-ray modalities were calculated. The radium-D plaque for very superficial lesions would be expected to be as effective as the radium plaque but lacks sufficient penetration for slightly deeper lesions.

Practical Suggestions for the Preparation and Maintenance of Sterile Ophthalmic Solutions. F. H. Theodore and R. R. Feinstein. *American Journal of Ophthalmology*. Vol. 35, Part I, pp. 656-659. May, 1952.

The main source of danger of contamination of commercially prepared ophthalmic solutions is the long time interval between manufacture and use, which allows contaminants to grow profusely. Hospital pharmacies and retail pharmacies often prepare large stock bottles of commonly prescribed ophthalmic solutions which can serve as excellent culture media. In either case, by the time the patient uses the

solution it may be loaded with organisms. The bacterium considered to be the major offender is *Pseudomonas aeruginosa*. It can cause the most serious type of corneal ulcer encountered. In the authors' experience, there are very few ophthalmic drugs, including antibiotics, in which this organism cannot grow.

The authors recommend the following procedure: (1) All equipment in contact with the solutions must be sterilized; (2) the prescription is compounded in the usual fashion, using a saturated solution of chlorobutanol as the vehicle; (3) all filtration and transfer of solutions must be done directly under exposure of the Sterilamp to avoid airborne contamination. Hospital pharmacies should use a number of small bottles rather than large stock bottles. Cork stoppers should never be used because they are difficult to sterilize and may carry infection. As a general rule, with certain exceptions, all ophthalmic medicaments, especially alkaloids, are altered in potency and in chemical character by heat sterilization—a method widely used, especially in hospitals. These changes accelerate the deterioration of the active drug. If only heat sterilization is available to the ophthalmologist, he should use merthiolate (1:10,000) as a bacteriostatic agent. In general, drugs sterilized by heat should be used only in operating rooms and should be discarded the same day.

As to solutions used in the office, the ophthalmologist should insist on obtaining sterilely prepared solutions with added preservatives, bottled in small containers. To avoid discarding a rarely used bottle of expensive solution, he may add a few crystals of chlorobutanol with a sterile forceps every few weeks. He and his assistant must guard against contamination of the eyedropper, especially if it has touched an infected eye.

One definite advance has been made toward reducing the danger of contamination of eye solutions: the American Medical Association Council on Pharmacy and Chemistry now requires sterility of ophthalmic solutions as a prerequisite for council approval.

Management of Endogenous Uveitis. M.D. Pearlman. *The Eye, Ear, Nose & Throat Monthly*. Vol. XXXI, pp. 202-206. April, 1952.

Dr. Pearlman of the University of Illinois says that despite the fact that it is often impossible to make an etiologic diagnosis, it is still possible to appraise and treat effectively most patients with endogenous uveitis, if the following four considerations are kept in mind:

1. Statistics of etiology in uveitis. Indications point to tuberculosis as the most suspected cause and to sarcoidosis and brucellosis as common etiologic factors.

2. Clinical differentiation of non-granulomatous and granulomatous forms of uveitis. The former is caused by streptococcal foci of infection, gonorrhea and unclassified bacterial foci of infection. The latter is usually caused by tuberculosis, syphilis, sarcoidosis, brucellosis, sympathetic ophthalmia and other rare granulomatous

states. The mixed form is usually seen in lentogenic uveitis.

3. Simplified etiologic investigation including history, general physical examination, x-rays, and laboratory and skin tests.

4. Utilization of therapeutic trials with any of the agents known to be beneficial in specific conditions when a "positive" diagnosis is unattainable.

Results of Use of Corticotropin (ACTH) in Treatment of Retrolental Fibroplasia. A. B. Reese, F. C. Blodi, J. C. Locke, W. A. Silverman and R. L. Day. *A. M. A. Archives of Ophthalmology*. Vol. 47, pp. 551-555. May, 1952.

This study covers infants born between December 15, 1949, and July 25, 1951. ACTH treatment of these infants was begun between February, 1950, and August, 1951, a 19-month experience in two New York hospitals—Babies and Lincoln.

Results in the 1950 series suggested that ACTH might be effective in treating retrolental fibroplasia. However, results in the 1951 series and comparison of these cases with control cases led the authors to conclude that ACTH has no effect on the course of the disease.

Tabulated mortality rates of infants receiving ACTH treatment and those not treated show: among 36 babies receiving ACTH, six died; among 49 babies not receiving the hormone, one died. The authors believe that the treatment was responsible, either in part or entirely, for the deaths. All the deaths occurred in the patients treated for three weeks or longer. No deaths occurred when the duration of treatment was only two weeks. The authors

have discontinued use of ACTH in retrolental fibroplasia, and are investigating other therapeutic approaches.

Effect of ACTH on Normal Ocular Tension. C. W. Tillett. *American Journal of Ophthalmology*. Vol. 35, pp. 659-662. May, 1952.

Twenty-one patients on the medical wards of Johns Hopkins Hospital were used as subjects in a study to determine the effect of ACTH on the intraocular pressure of normal eyes. The sodium-retaining effect of this hormone suggested that it might cause some elevation of intraocular pressure.

In a group of 15 patients with normal or nonglaucomatous eyes, no significant elevation in intraocular pressure was detected while on ACTH treatment. No change in visual acuity or refractive error was noted while on treatment. In a second group of 10 patients, including four of those already studied, under active ACTH treatment, the response to provocative tests for glaucoma was negative.

The results of the study did not rule out the possibility of an effect on intraocular pressure when there is no salt restriction. However, on the standard ACTH regime, which includes salt restriction, no effect was noted.

Requirements For General Purpose Sunglasses For Over-The-Counter-Sale. *Memorandum Report* 52-6, Medical Research Laboratory, U. S. Naval Submarine Base, New London. April 4, 1952.

Among the requirements adopted for evaluation of sunglasses proposed for over-the-counter sale at U. S. Navy Exchanges are: 12-25 per cent transmission of visible light; ultraviolet, not more than 10 per cent

average transmission in the erythral band from 290-320 m μ .; essentially neutral color, excitation purity not to exceed 25 per cent; 4-6 base curvature, substantially uniform; refractive power measured at the center of the lens "as worn" should not exceed .08 diopter in any meridian and the difference in power between any two meridians at this point should not exceed .08; the glass or plastic should be free from visible defects; and frames should be sturdy, well-fitting and of good quality. It is also stated that tinted lenses should not be used when driving at night. Therefore, no goggle advertised as a night-driving aid can be considered.

Retinal Changes in the Toxemias of Pregnancy. R. Landesman, R. G. Douglas and S. S. Snyder. *American Journal of Obstetrics and Gynecology*. Vol. 63, pp. 16-27. January 1952.

The authors studied 172 pregnancies complicated by mild hypertensive disease, 142 by severe hypertensive disease and 27 by renal disease. Retinal examination in patients with mild hypertensive disease has the value of establishing a basis for comparison with more advanced changes which may occur later. In severe hypertension the character of the retinal arterioles may be of great prognostic value, more so than in any of the other toxemias. The percentage of pregnancies requiring interruption increases rapidly with the degree of retinal arteriolar damage in severe hypertension. In chronic renal disease, the prognosis for a living infant is less as the severity of retinal vascular change increases. In diabetes mellitus with associated toxemia, retinal vascular changes are a more

ominous prognostic sign to the fetus than in toxemia alone. Diabetic retinopathy is a further hazard to the mother's vision, since it tends to increase during pregnancy and may seriously involve the macular area. These patients should not attempt pregnancy.

The authors believe that frequent examination of the retinal vascular bed is an important aid in the diagnosis, evaluation and management of the toxemias of pregnancy. The decision to terminate a pregnancy may depend largely upon these frequent observations of the retina.

Light for Learning. Standardization. Vol. 23. p. 48. February 1952.

In California last year the Board of Governors of the Vallejo Unified School District approved a plan for modernization of 334 classrooms in 18 elementary and high schools. The Board directed that plans for future school construction be reviewed by lighting engineers to insure adequate lighting provisions. Results of a school survey had revealed that 34 per cent of the classrooms had window area less than $1/6$ the floor area, and an additional 24 per cent had less than $1/5$ the floor area. Good practice requires the equivalent of 40 per cent of the floor area in glass.

In the project two sources of lighting have been used. In elementary schools, incandescent fixtures were installed to provide 30 footcandles at desk level. In high schools fluorescent fixtures were used to produce 50 footcandles. School authorities have been convinced that older classrooms with lighting below modern standards can be brought up at moderate cost to the requirements of the American Stand-

ard Practice for School Lighting of the Illuminating Engineering Society.

Terramycin in the Prophylaxis of Ophthalmia Neonatorum. D. O'Brien. *The Lancet*. Vol. CCLXII. pp. 347-348. February 16, 1952.

The author made a study in 1951 at the Hammersmith Hospital, London, to assess the value of terramycin in the prophylaxis of ophthalmia neonatorum. Terramycin in the form of drops was used in 254 infants; 264 infants were used as controls. Terramycin ointment was used in 270 infants; 259 were used as controls. Results were substantially the same for the treated and the control groups. The author concludes that terramycin is of no value in the prevention of ophthalmia neonatorum.

Common Causes of Curable Blindness. J. Foster. *British Medical Journal*. No. 4753. pp. 318-320. February 9, 1952.

The commonest treatable causes of blindness in Great Britain are trauma, iritis, acquired glaucoma, cataract and myopia. The relative incidence of these is not given. However, the author points out that the incidence of binocular traumatic blindness in England is relatively low. Industrial blindness is largely monocular; patients losing the sight of one eye are 10 times as numerous as those who lose the sight of both. But only half the cases of traumatic blindness are industrial. Other cases occur in children as a result of penetrating wounds from unlikely and unforeseeable causes and in persons involved in motor accidents.

In the industrial field, the author indicates, the value of goggles remains relatively unrecognized. Here, 63 per

cent of eye injuries are caused by abrasive particles. Six out of every 1,000 miners employed have eye injuries annually, caused mostly by foreign bodies. Injuries from chisel particles comprise about 13 per cent of all injuries and are very much more serious than those due to abrasives. These may produce lens damage which often leads to cataract.

The article includes sections on diagnosis, etiology and treatment of each of the diseases listed above.

Save That Injured Eye. L. P. Jones. *Today's Health*. Vol. 30. p. 20. March 1952.

People need to be impressed with the seriousness of eye injuries, according to this author, because too little is known by laymen about the care and treatment of eye injuries and because even minor eye injuries are serious. Any eye injury not healed in 24 hours may become infected.

There are two categories of eye injuries: those involving a foreign body, acid or alkali; and those in which a blow or a wound is suffered directly. In the case of a foreign particle, if tears or flooding the eye with lukewarm water will not help and if any pain persists after two hours, a visit to the doctor is in order. In case of a penetrating wound, cut, abrasion or burn, the patients must always see a qualified physician, preferably an ophthalmologist, as quickly as possible. An eye with a cut, abrasion or penetrating wound should not be flooded with water. An eye spattered with alkali or acid should be flooded with water, pure vaseline applied to the lids, and the eye covered with an aseptic gauze patch.

An ophthalmologist is better

equipped to deal with an eye injury than a non-specialist. Prompt treatment by a qualified ophthalmologist or physician will save many eyes that otherwise would be blind as a result of injury or infection.

Eye Changes Following Exposure to Metallic Mercury. S. Locket and I. A. Nazroo. *The Lancet*. Vol. CCLXII. pp. 528-530. March 15, 1952.

At Oldchurch Hospital, Romford, Essex, England, the authors examined the eyes of 51 repairers of direct-current electric meters to ascertain eye changes following exposure to metallic mercury. In summary, the authors state that 12 of the 51 showed a matt-brown reflex from the anterior lens capsule. This change seems to depend mainly on length of exposure to metallic mercury, and is not related to symptoms of mercury intoxication at the time of examination. In all cases this brown reflex was bilateral and apparently had no effect on visual acuity. No evidence of retrobulbar neuritis was found in any of the 51 workers. The authors suggest that this colored reflex from the lens could be used as a screening device for atmospheric mercury levels.

Detection of Intraocular Tumors with Radioactive Phosphorus, a Preliminary Report with Special Reference to Differentiation of the Cause of Retinal Separation. C. I. Thomas, J. S. Krohmer and J. P. Storaasli. *A. M. A. Archives of Ophthalmology*. Vol. 47. pp. 276-286. March 1952.

Recognition of the importance of localization of brain tumors by means of radioactive isotopes led the authors to apply the principle to similar localization of intraocular tumors as a diag-

nostic test in cases of retinal detachment of questionable origin. They used radioactive phosphorus in eight cases. In every case encountered the intraocular tumor did exhibit an increased phosphorus concentration, while in two cases in which no tumor was present the activity proved to be uniformly distributed throughout the eye. Results demonstrated the importance of the test in evaluating cause of retinal separation. However, more clinical tests and experimental work are necessary.

Systemic and Laboratory Investigation of Intraocular Disease. N. L. Hart. *New Orleans Medical and Surgical Journal*. Vol. 104. pp. 372-375. March 1952.

Emphasis is placed on the importance of close cooperation between the eye physician and the internist or family physician in order to determine the etiology of intraocular disease. The advent of antibiotics and sulfonamides has created a pitfall for those who take advantage of their empirical use before a systematic effort has been made to determine the etiology. This risks suppression rather than eradication of an inflammatory process. Also, the empirical therapy may camouflage the etiology, rendering diagnosis difficult or impossible. The author offers an organized program of investigation to be followed with alterations as necessary in individual cases. He summarizes data on 27 cases in which this method was followed. The importance of careful stool examination, for example, was shown by the presence of *Endamoeba histolytica* in 10 of the 27 cases, an incidence of 39 per cent, and its prompt disappearance from the stool simultaneously with regression

of the intraocular inflammatory process shortly after antiamebic therapy was initiated.

Stellate-Ganglion Block in Retinitis Pigmentosa. R. J. Kennedy and W. J. McGannon. *A. M. A. Archives of Ophthalmology*. Vol. 47. pp. 287-291. March 1952.

Beneficial results of cervical sympathectomy and cervical sympathetic block in the treatment of retinitis pigmentosa have been inconclusive, and the question has been raised as to whether the benefits derived from such measures are psychologic or organic. The authors subjected 14 patients to cervical sympathetic block, first using procaine hydrochloride, and later saline solution instead of procaine.

No actual objective improvement was shown in any of the patients after the use of either saline or procaine. Subjective improvement following procaine was reported to be the same as that following saline. The authors conclude that the benefits derived from cervical sympathetic block are purely psychical, and that stellate ganglionectomy is of no value in the treatment of retinitis pigmentosa.

Relation of Factors Involved in Maintenance of Optical Properties of Cornea to Contact-Lens Wear. G. K. Smelser. *A. M. A. Archives of Ophthalmology*. Vol. 47. pp. 328-343. March 1952.

Studies of the effect of contact lenses on the physiology of the cornea were carried out on four subjects. It was found that contact lenses interfere with the optical properties of the cornea by affecting the water balance of that tissue. Conventional contact

lenses become very tightly fitted to the eye, preventing both the maintenance of a hypertonic precorneal film and access of oxygen to the corneal surface. Changes in the optical properties of the cornea associated with conventional contact lenses should be, and are, much less or minimal when lenses are worn which permit (1) rapid exchange of tears with the fluid under the lens and (2) adequate access of the cornea to oxygen.

Retrolental Fibroplasia, A Problem of Prematurity. B. A. Bembridge, M. Coxon, A. C. L. Houlton, C. R. S. Jackson and V. Smallpeice. *British Medical Journal*. No. 4760. pp. 675-680. March 29, 1952.

The authors report retrolental fibroplasia as a disease of recent appearance in Great Britain. It is confined to premature infants of low birth weight, is of post-natal appearance and may lead to gross visual defect or blindness of both eyes.

Diagnosis is discussed in the 22 cases that have appeared in Oxford since 1947. The authors believe that the disease was restrained by use of ACTH in six cases. Despite gross intraocular damage, many of the eyes retain sufficient vision to enable the child to avoid obstacles and to walk about unaided. Excision of the eye is unnecessary, and is to be avoided in view of this possibility.

Familial Cataract and Mental Deficiency. B. H. Kirman. *The Lancet*. Vol. CCLXII. pp. 694-696. April 5, 1952.

According to the author, a familial incidence of cataract has often been observed and commonly attributed to a dominant gene. He points out that the study of maternal rubella has

thrown light on environmental factors which may produce congenital cataract with associated anomalies. It is, therefore, now opportune to re-examine in light of this new knowledge those cases of congenital cataract in which no etiologic factor is apparent.

He reports a case of congenital familial bilateral cataract with imbecility. In three generations four persons were affected by cataract, a fifth by mental deficiency and a sixth by epilepsy. The case is distinguished by the association in the affected members of the family of a brain lesion (as shown by mental deficiency) with the congenital cataract.

On the Cultivability of the Pathological Agent of Trachoma in Vitro. L. Poleff. *World Health Organization—WHO, Trachoma*, 33. pp. 1-4. May 27, 1952.

The author has succeeded in producing an indisputable experimental case of trachoma on the healthy conjunctiva of an irreparably blind eye, by inoculating the eye with a culture of trachoma bodies obtained in vitro. The culture of trachoma bodies was obtained in vitro on human cornea tissue by inoculating the tissue with corpuscles isolated in the incubated hen's egg. The experiment affords proof that it is possible to culture the pathological agent of trachoma in vitro.

The source of the virus was a patient suffering from pure trachoma II-III. Conjunctival curettage of both upper eyelids was done. The product containing corpuscles was ground and suspended in Tyrode's solution, and then injected into yolks of six eggs incubated for seven days. Examination of the membranes on the

fifth day after inoculation revealed one of these eggs to be rich in inclusions. Ground membranes were used for passages on other eggs and to inoculate healthy corneal tissue taken from a patient undergoing a grafting operation. Cultures from this cornea were prepared in four hollow slides where distinct multiplication of the corpuscles occurred. The eye of a hopelessly blind woman free of trachoma was then inoculated. Trachoma developed in both eyes.

Eyes in Industry. M. H. Kronenberg. *The Optometric Weekly*. Vol. XLIII. pp. 862-865. May 22, 1952.

The eye program at Caterpillar Tractor Company is described. Personnel interviewers at the plant serve as a pool for referring applicants before appointments are made for assignment to the medical division for full physical examination. In 1951 they referred 763 prospective applicants for eye skill verification. Of these, 575, or 75 per cent, had non-correctible eye defects.

During 1951, the total number of individuals screened was 13,641. Of these 273 were rejected. During the same year, 757 were referred to members of the panel for correction. There were 928 wearing acceptable corrections, but they did not have safety lenses and were referred out for neutralization and measurements for safety prescription glasses. About five to seven per cent of the applicants were wearing glasses which met the plant's visual standards and had already been equipped with the necessary safety glasses, most of them obtained while employed in other plants. Thus, in 1951, about 3,350 of the total were wearing safety glasses. It was

estimated that about 25 per cent of the total applicant group for that year were in need of correction or were outright rejects.

Screening devices have made it possible to process people rapidly and accurately regarding visual acuity, muscle balance, depth perception and color perception. The author makes clear that while the industrial physician may in a way control fitness placement, what is needed is a "fraternity of effort" in which the personnel interviewer, safety engineer, plant physician, screening technician, optometrist, ophthalmologist, job analyst and foreman participate as a team.

A Comparison of Vision Screening Tests with Clinical Examination Results. A. E. Sloane and J. R. Gallagher. *American Journal of Ophthalmology*. Vol. 35. pp. 819-830. June 1952.

The authors provide the following summary of their findings in a study made at Massachusetts Eye and Ear Infirmary and the Children's Medical Center, Boston.

1. A group of 185 boys ranging in age from 13 to 19 years were selected for referral to an eye specialist by their failure of a modification of the Massachusetts vision test or because of symptoms of visual discomfort. A comparison of the screening test results with the subsequent clinical examination is presented as evidence of the efficiency of this screening method.
2. Sixty-one of the referrals were on the basis of symptoms alone; in each of these all three of the parts of the modified Massachusetts vision test had been "passed." In 13 of these 61 cases, the clinical ex-

amination subsequently revealed visual abnormalities which a screening test should detect. In one instance of referral on the basis of deficient visual acuity, normal vision was found; and in another instance, where the screening test result was 20/40 vision, the clinical examination revealed 20/20 vision with compound hyperopic astigmatism.

A total of 15 significant errors (eight per cent) was made by the screening test. It is to be remembered, however, that the test is intended to be supplemented by referral for symptoms and that in 13 of these 15 cases, referral was made on that basis. In only one instance when the referral was based on abnormal screening test findings was the referral considered unnecessary.

3. In eight cases (4.3 per cent) there were differences in the heterophoria ratings of such a degree that the subject passed either the screening test or the clinical examination and failed the other. These errors are not classed as significant because in each case the individual was selected for referral by his failure of another phoria test, the visual acuity test or the plus-1.5D. sph. test.
4. Eighty-four boys (about 45 per cent) were referred on the basis of failure of the visual acuity test; over 83 per cent of these were found to need glasses or a change in their present glasses and the clinical findings were in essential agreement with the screening test results in every case but one.
5. Nineteen boys (10 per cent of the group) were referred because of

failure of the plus sphere test using 1.50 diopter lenses; all of these were found to need glasses or a change in glasses and in every instance the clinical and screening test results were essentially in agreement.

6. Twenty-one boys (11 per cent) passed both the visual acuity and plus sphere test using 1.50 diopter lenses and were referred because of failure in the phoria tests. Six of these were found in need of glasses or a change in glasses; in only one of the 21 was there significant disagreement between the screening and clinical tests, and no case was considered to have been referred unnecessarily.
7. Sixty-one members of the group (33 per cent) were referred because of symptoms; 13 of these had normal screening-test and abnormal clinical-examination findings; 31 had negative findings at both examinations: the screening test results were corroborated by the clinical examination and the referral on the basis of symptoms deemed unnecessary. The remaining 17 had similar screening-test and clinical-examination findings but were considered to be in need of a change in present glasses or of observation and were considered to have been properly referred on the basis of their symptoms.

Retinal Findings in Pregnancy Complicated by Diabetes Mellitus and Toxemia. S. S. Snyder. *American Journal of Ophthalmology*. Vol. 35. pp. 831-836. June 1952.

From January 1939 through June 1950, at the New York Lying-In Hospital, 131 pregnancies were complicated by diabetes. Of these, 37 had

a concomitant toxemia, and had adequately described eyeground examinations recorded. The author grades retinal arteriolar changes from Grade 0, normal arterioles, through Grade 4, "copper wire" arterioles, local or general spasm plus retinopathy and papilledema.

Snyder concludes that if a patient is a severe preëclampsic with Grade-1 retinal arteriolar changes and the baby is large enough, labor should be induced or cesarean section done before Grade-2 changes appear. He believes that Grade-2 changes in toxemias of pregnancy associated with diabetes mellitus warrant early termination of the pregnancy. If Grade-3 or Grade-4 eyeground changes develop during the first trimester, he feels that therapeutic abortion is probably indicated; if noted later, immediate interruption is necessary if the fetus is viable.

Type and degree of diabetes in this series did not seem to have as much effect on the fetal outcome as did type and severity of the toxemia. It appears that earlier interruption of pregnancies complicated by diabetes and a toxemia will result in more living babies even though some will be premature.

Daily ophthalmoscopic examinations provide the obstetrician with a valuable aid in the management of patients with diabetes mellitus and a toxemia of pregnancy.

Interpretation of Illumination Data.

M. A. Tinker. *American Journal of Optometry and Archives of American Academy of Optometry*. Vol. 29. pp. 293-300. June 1952.

The author examines the validity of current practices in interpreting il-

lumination data. It is common procedure to plot the relation between visual acuity and illumination intensity on a logarithmic scale. Then interpretations based upon the trends in these curves are applied to practical seeing situations. Small differences in visual acuity show up as marked gains in these curves in comparison with the apparent trends when plotted on a linear curve, especially at the higher illumination levels. When there is statistical evaluation of the data, the small gains at the higher intensity levels are not significant. It seems reasonable to this author to specify that significant gains in performance be established in illumination data prior to employing such data as bases for recommendations in practical seeing situations.

The Progress of Refraction. R. J. Ongsiako. *The Journal of the Philippine Medical Association*. Vol. XXVIII. pp. 338-344. June 1952.

Dr. Ongsiako describes different methods of refraction in current use and reviews their development.

Errors of refraction were first measured by trying on different lenses and selecting the lens or combination of lenses which gave the best vision. The next step forward was use of the cycloplegia which is based on the belief that accommodation obscures the findings and may mislead the examiner. The third step in the progress of refraction was the introduction of the fogging method which is based on the theory that accommodation is a reflex mechanism. If better vision can be obtained by contraction of the ciliary muscle, it contracts. On the other hand, if, as when fogged (making the eye artificially myopic), better vision is ob-

tained by relaxing, the ciliary muscle relaxes.

In over half of all cases, all methods of refraction—dials, cross-cylinder, cycloplegia, fogging—reach almost identical results in the hands of experts. However, experience indicates that in the remaining cases, a good result is not attainable using one method or the other. For this reason a system called verified refraction was introduced, which compares the results of different methods. It permits all tests to be checked by other techniques based on different principles.

Work, Vision and Illumination. E. Simonson and J. Brozek. *Illuminating Engineering*. Vol. XLVII. pp. 335-349. June 1952.

Increasing involvement of visual functions in man's work and frequent complaints about eyestrain and fatigue are directing ophthalmologists, physiologists, psychologists and illuminating engineers to questions of illumination and vision. This calls for re-examining the present situation and re-evaluating older material in the light of recent progress. The authors provide such an analysis.

Concerning trends in illumination codes, the authors point out that variations of illumination levels produce greater changes in visual performance or comfort than does variation of other variables. Comparison of early illumination codes with recent ones shows a striking increase in illumination levels recommended for the same type jobs. For ordinary reading, 30 footcandles are now recommended as compared with 3 to 6 footcandles 30 years ago. The recommendations are based on measurements of visual acuity; the technique has been the

same for the past 50 years. This then affords no explanation for the increase in recommended levels.

The authors suggest that the increase in attainable illumination levels may have been the main reason for the increase of recommended illumination levels. It is easier and cheaper to provide 20 footcandles today than 5 footcandles a few decades ago. They also suggest that the interpretation of the same data has changed. Visibility measurements are threshold measurements, and there is a large margin of arbitrary judgment as to how much illumination should be added as a "safety factor" to threshold values. Early investigators were satisfied with a narrow safety factor. This safety factor has been tremendously increased in recent recommendations. Clearly, the higher the safety factor, the more remote are the recommended levels from the experimental background of threshold measurements.

This raises the question whether such an experimental basis is needed at all. One might be satisfied with general practical experience, and, indeed, this has largely been the case in arriving at the I.E.S. recommendations for various job categories. Comparison of most recent British and American illumination codes reveals that the American recommendations are substantially higher. Although no final evaluation has been made, the very fact of the discrepancies between the two shows the need for more research. The situation is complex, since visual work involves a variety of visual functions and visual fatigue is superimposed on fatigue resulting from stress placed on non-visual functions.

As to approaches to the study of

illumination and visual work, the authors say that the main quantitative approaches consist in the study of performance, changes in visual functions and concomitant changes in non-visual physiological functions resulting from visual work, and in the prediction of visual stress from brief visual tests.

In their discussion of brief tests of visual functions, the authors indicate that it is not feasible on brief visibility measurements to base a prediction of ease of visual work extending over several hours. The most serious objection against use of visibility data as a basis for illumination standards is the arbitrary selection of a single visual function, tested under conditions quite dissimilar to actual working conditions. Visual work involves a large number of visual functions which may respond differently to a given situation of visual stress.

Discussing fatigue trends in visual functions, the authors say results of studies on fatigue of single visual functions have been, in general, disappointing. Fatigue trends in non-visual functions have been studied, and most of the experience seems to indicate that the subject is very complex and no simple correlation between remote functions and visual variables can be expected.

Concerning industrial work performance, the authors cite work performance as the most important practical criterion for a comparison of variables of illumination, but the hardest to standardize and evaluate quantitatively. When all interference factors are eliminated, so far as possible, visual work performance is the most revealing index for visual fatigue and a comparison of illumination

variables. Investigations in plants rarely offer the opportunity for obtaining reliable data on changes of work capacity as an index of visual stress or fatigue because social factors may determine daily performance to a greater extent than physiological limitations.

Laboratory studies on work performance permit a miniature work situation where most of the interference factors can be eliminated or standardized. The performance is a more sensitive index for differentiation between variables of illumination and for the discovery of visual fatigue than concomitant changes in visual or non-visual functions.

Although the authors present the various experimental approaches to the study of illumination and visual performance individually, they point out that all the approaches should be combined to make the picture complete. They believe that only through the accumulated work of many investigators is there hope for arriving at a satisfactory test-battery and at more accurate recommendations of the quality and intensity of illumination.

Eye Manifestations of Head Injuries. H. H. Gurau. *The Journal of the Iowa State Medical Society*. Vol. XLII. pp. 256-260. June 1952.

Eye manifestations are observed in about 80 per cent of cases of head injuries. They may involve the adnexa, pupils, motility, fundi, central or peripheral vision. When evaluated properly, the author believes them to be of great diagnostic, prognostic and therapeutic aid. He observes that eye symptoms run so high in these cases because embryologically the eyes are

a part of the brain, and of the 12 cranial nerves, six are wholly or partially concerned with supplying the eyes. There is a tendency of fractures of the base of the skull to converge toward the pituitary region, and any damage in that area is prone to damage some of the nerves supplying the eyes.

Tinted Lenses in Shooting. E. O. Bierman, Capt. (MC), U.S.A. *American Journal of Ophthalmology*. Vol. 35, pp. 859-860. June 1952.

A company of 136 men was surveyed. All men with less than 20/20 vision in both eyes were refracted and fitted with glasses. Those who received glasses were given two pairs, one with standard army lenses, the other a pair with the tinted lenses. The men with 20/20 vision were given a pair of plano-tinted lenses for shooting.

Results indicated that the majority of individuals are not better marksmen with the use of a yellow-tinted lens. Though the yellow glass removes the blue haze, the clearer image must be accepted by the mind. The benefit of yellow lenses depends upon the individual; some may benefit while others may be hindered.

The Eyes and Vitamins. B. Rones. *The American Journal of Nursing*. Vol. 52. pp. 728-729. June 1952.

In his discussion of vitamins A, B, C and other vitamins, the author points out that although ocular symptoms occur in many vitamin deficiency diseases, vitamin therapy alone will rarely, if ever, cure them.

Of particular interest is his discussion of vitamins K and P. The body needs vitamin K for the proper coagulation of the blood. A dietary defi-

ciency of this vitamin is unknown, but it can occur in individuals with poor intestinal absorption. It has been given to mothers before childbirth in an attempt to prevent retinal hemorrhages in the newborn. The value of this therapy has not been established. Vitamin K has been recommended for the prevention of postoperative hemorrhage in cataract surgery, but it is dubious whether the incidence has been influenced by the preoperative administration of this vitamin.

Vitamin P is found in lemon concentrates. It reduces the permeability of capillaries and consequently has been used in treating various hemorrhagic diseases of the eye. There have been favorable reports following its use in diabetic and arteriosclerotic retinal disease, frequently in conjunction with such anticoagulant drugs as heparin and dicumarol. There are skeptics, however, who do not believe that an increased fragility of the skin capillaries is an index of the same state of affairs in the retinal capillaries, and, therefore, believe that this therapy is valueless. It is still too early to evaluate its beneficial results properly.

A Survey of Methods Used to Reveal Eye Defects in School Children.

A. L. Morgan, J. S. Crawford, T. J. Pashby and J. R. Gaby. *The Canadian Medical Association Journal*. Vol. 67, pp. 29-34. July 1952.

Twelve hundred children in two of Toronto's public schools were tested. The authors present their conclusions and recommendations as follows:

1. The Snellen illiterate "E" chart is an adequate test for visual acuity in the kindergarten age group. A visual acuity of 20/30 in each eye can be regarded as normal. Chil-

- dren with visual acuity poorer than 20/30 in either eye should be referred for eye consultation.
2. In grades one to eight a visual acuity of 20/20 in each eye can be regarded as normal. The Snellen Number Chart is an adequate test of visual acuity for children in Grade I, and the Snellen Letter Chart is adequate for children in Grades II to VIII. A child with vision poorer than 20/20-3 in either eye should be referred for eye consultation.
 3. Adequate illumination of the Snellen chart is necessary. This should be about 10 footcandles and may be obtained by placing a goosenecked lamp with reflector on each side of the chart and about three feet from it. Each lamp should contain a 100 watt daylight bulb.
 4. Snellen charts should be placed a distance of 20 feet from the subject. It is preferable to test each child alone without the distraction of other children.
 5. Color vision can be adequately tested by Holmgren wools in the kindergarten age group, and by Pseudo-isochromatic or Ishihara plates in the older age groups.
 6. No one test for the measurement of vertical and lateral phorias is better than any other, as all the tests correlated poorly. The amount of emphasis that should be placed on phorias in this age group is problematical. Any tropia should, of course, be referred for an ophthalmologist's opinion.
 7. It would be advisable for persons doing eye testing in schools to have had some instruction either by lecture or by pamphlet in visual testing, types of refractive errors,

strabismus, and signs and symptoms suggesting ocular difficulties.

Chemical Burns of the Human Cornea. R. S. McLaughlin. *American Journal of Ophthalmology*. Vol. 35. pp. 1088-1091. August 1952.

For practical, not technical, purposes, the author defines a chemical burn as any exposure to chemicals (solid, liquid, or gas) which results in any damage to the cells of the cornea or conjunctiva. This damage is evidenced by a positive stain by fluorescein and confirmed by examination with the biomicroscope. He does not argue diagnostic points, explaining that he knows of no way to determine degrees of burns until such a late date that known therapeutic methods are of no avail. His experience shows that injuries from caustics and certain of the complex organic chemical compounds demand prompt diagnosis and meticulous care, even at the expense of treating eyes that should be left untouched. Fortunately, there are no contraindications to this method of treatment and no harm is done to any eye by its use. He presents a detailed description of the management of chemical burns of the cornea, including first aid, dispensary treatment, the ophthalmologist's care and after care.

The Cross-Eyed Child. R. D. Harley. *The Journal of the Medical Society of New Jersey*. Vol. 49. pp. 295-297. July 1952.

The Conservation of Vision Committee has recently launched a program of talks on children's eyes before parent-teacher groups. Early treatment for the cross-eyed child is stressed. This paper is intended to serve as a guide to any physician

called to speak before a civic group on this subject.

Study of 100 cases of crossed eyes showed that in 30 a period of two to five years had elapsed before consultation with an eye doctor. Reasons for the delay as given by parents fell into three categories: (1) parents' failure to recognize the crossed eye; (2) acceptance of advice to wait; and (3) parents' fear of operation.

There is general medical agreement that children with cross-eyes should have their eyes straightened early in life. There are three basic methods of treatment: (1) prescription lenses (with or without patching one eye); (2) eye exercises; and (3) surgery. The author states that just as you would correct a child's lame leg when possible before he learns to walk, so would you correct a child's crossed eyes before he needs to use them together as a team. This goal is attainable for virtually every cross-eyed child who is handled in a manner consistent with present day concepts.

Suggestions for a New Fee Structure in Optometry. C. C. Koch. *American Journal of Optometry and Archives of American Academy of Optometry*. Vol. 29. pp. 331-340. July 1952.

The author has proposed a simplified fee system for optometrists in professional practice. A minimum examination and refraction fee of \$10.00 is proposed. In cases requiring specialized or unusual care, fees larger than the minimum are suggested. It is also suggested that all ophthalmic materials be dispensed at the prescription laboratory cost to the patient. Under the plan the optometrist who averages two refractive cases a day will have a minimum net income, after

all legitimate operating bills are paid, of close to \$500.00 per month.

The author points out that optometry is rapidly assuming full professional stature. Its educational requirements and the professional character of the work done by optometrists now require that its fee structure be adjusted to eliminate the suggestion of, or criticism because of, profiting on the sale of materials. Optometrists' incomes should consist of professional fees only. These fees must not be hidden or confused with the cost of materials to the patient. The plan, as proposed by this author, adjusts the fee structure to accomplish these ends.

Etiology and Treatment of Retinitis Pigmentosa with Special Consideration of the Use of Melanophore Hormones. G. Rama, *Rass. Ital. d'Ottal.*, May-June, 1952, Vol. XXI, p. 143.

A series of cases of pigmentary degeneration of the retina was divided into 4 groups, according to the history and development. In the first group are the cases with a clear family history of the disease, while in the second group a family history existed but the disease arose only after a morbid process in the body. In the third group, no family history was present, but the process arose after sickness, while the fourth group was comprised of those cases with no family or morbid history preceding. In 64 per cent of the cases an heredo-familial factor was noted, in 15 per cent consanguinity was reported. The eyes were myopic in 50 per cent, hyperopic in 12 per cent, the remainder emmetropic. Hyperacusia occurred in 45 per cent of cases and glaucoma developed in one patient.

The author concludes that other factors than heredity may cause the picture of retinitis pigmentosa.

Twenty-seven cases were treated with a melanophore hormone, employed by injection, instillation or the two combined. In general the effect on vision was good, less so on the field of vision and nil on the luminous sense. There appears to be no evidence that this or any other treatment has much advantage in the attempt to improve the nutrition of the visual elements.

EUGENE M. BLAKE, M.D.

Glutathione in the Crystalline Lens, U. Dorello, *Rass. Ital. d'Ottal.*, May-June, 1952, Vol. XXI, p. 172.

The percentual content of glutathione is much greater in the crystalline lens than in any other structure of the body and greater than in any other portion of the eye. However, the percentage given by different observers varies considerably. Dorello found a decrease in the content of glutathione percentage of rabbits' lenses after the administration of ACTH and DCA parenterally. Such a decrease may be hypothetically attributed to the action of the DCA, perhaps through a mechanism of "strees."

(Note:—I do not know what DCA is—only the initials are used through the article.)

EUGENE M. BLAKE, M.D.

The Histology of the Lacrimal Sac at Various Ages of Life, A. Garzino, *Rass. Ital. d'Ottal.*, Nov.-Dec., 1952, Vol. XX, p. 343.

Many lacrimal sacs were removed at all ages from birth into advanced years and the histological examinations are summarized. The sac of the

new-born and in youth has a normal histological appearance. In the adult, one finds evidences of attenuated chronic inflammatory changes which tend toward cicatrization and sclerosis. Epiphora is more frequent in old people because of a tendency to stenosis at the outlets of the duct and from compression by lymphatic follicles. Chronic dacryocystitis becomes more frequent in older people and introduces inflammatory features. There is marked similarity in the histological aspect of the two sacs in an individual. Tumor-like cells are sometimes seen and form adenomatous and cystic areas. In the walls of the sac one frequently sees glands of the serous type, especially in the young. The article is made more valuable by the presence of 31 figures.

EUGENE M. BLAKE, M.D.

Maryland Report

The 1951 annual report of the Montgomery County Health Department cites the work of a new group, the Special Case Committee, formed early in the year to consider problems brought by various agencies. The Committee's greatest contribution was providing for certification of cases by the Health Fund to civic clubs to pay for eyeglasses when necessary for children examined in the Health Department eye clinics. Under the arrangement, the Fund pays for eyeglasses when collections cannot be made by the civic clubs.

Figures for eye clinic services for 1950-1951 show: 972 clinic visits in 1950, 744 in 1951; 60 clinics held in 1950, 72 in 1951. Since 1950, the report states, Health Department sanitarians have been noting safety needs on their routine inspections.

BOOKS AND PAMPHLETS

SELECTED STUDIES IN VISUAL OPTICS. Joseph I. Pascal, O.D., M.D. C. V. Mosby Company, St. Louis, Mo. 1952. 800 p. \$12.50.

Dr. Pascal expresses the purpose of the book as twofold: to present some old material in a new way; and to present in an orderly manner a number of new ideas, methods, applications; simplified formulas; memory aids for things easily forgotten; schematic and graphic presentations; and helpful hints accumulated in some 40 years of teaching.

Some of the many subjects covered are lenses; the radian method in ophthalmic calculations; a physiological approach to refractive errors; refraction in general optics and in visual optics; observations on visual and orthoptic exercises; specialized techniques in the practice of retinoscopy; some observations on myopia; a new approach to cross cylinder tests; specialized training of the visual functions; and a graphic study of the ocular muscles.

Profuse illustrations, an appendix, a detailed list of references and an index increase the value of this practical volume.

VISION WITH SPATIAL INVERSION. F. W. Snyder and N. H. Pronko. University of Wichita Press, Wichita, Kansas. 1952. 144 p. \$2.50.

What occurs in perception when the visual field is inverted? The authors attempted to find an answer to this

question by conducting an experiment in which the subject, a 25-year-old graduate student in psychology, wore inverting lenses continuously for 30 days. They also studied the influence of past experience in performance during this period and following removal of the lenses.

The subject was given certain experimental tasks—card sorting, Purdue Pegboard task, Minnesota Rate of Manipulation Test, and mirror tracing. In performing these his visuomotor coordinations were in every way seriously disrupted at first, but were refashioned during the 30-day period. He then performed even better than before the lenses were put on. Upon their removal coordinations were again mildly disrupted for a short time.

In everyday life situations the disrupting effects of the inverted lenses gradually diminished during the 30-day period. The rate of improvement was fastest in well-practiced activities such as walking and eating. Since the special lenses restricted the field of vision, those activities requiring a range greater than 20 degrees were more seriously affected.

The authors infer that perception does not exist at birth, but comes into being only as the result of a series of "contacts" between the organism and features of its surroundings. They suggest that a radical revision of contemporary theories of perception is demanded.

The first section of the book is de-

voted to a historical perspective to the problem of perception and an outline of previous studies in vision.

A SYNOPSIS OF OPHTHALMOLOGY. J. L. C. Martin-Doyle, M.R.C.S., L.R.C.P., D.O. Williams and Wilkins Company, Baltimore, Md. 1951. 238 p. \$4.50.

In attempting to give a comprehensive view of the whole of ophthalmology in one small volume the author does not suggest that it should replace the larger and well-illustrated textbooks. This synopsis is designed for the senior medical student and the busy general practitioner; also for the post-graduate or ophthalmic house surgeon working for a higher diploma in ophthalmology who may be glad of a condensed work of this kind when reviewing for examinations.

Chapters are devoted to routine examinations; diseases of the conjunctiva, cornea, uveal tract, retina, sclera, optic nerve, vitreous, lens, orbit, eyelids and lacrimal apparatus. The synopsis also deals with anomalies, allergy, ocular signs of general disease, contact lenses, chemotherapy, and ACTH and cortisone in ophthalmology and slit-lamp microscopy.

A PATHOLOGY OF THE EYE. (Third edition.) Eugene Wolff, M.B., F.R.C.S. The Blakiston Company, Philadelphia. 1951. 354 p. \$9.50.

The third edition of this standard text by an eminent author is notable for its excellent typography and numerous clear illustrations. Over a hundred new pictures have been added, most of them original, and some of the text has been rewritten. The main additions to the text are on the origin of the melanomata, the nature of "gli-

oma" retinae, the pathology of cysts of Zeis's glands, Schnabel's cavernous atrophy, the pathology of Coats' disease, and retrolental fibroplasia.

OPHTHALMIC NURSING. Maurice H. Whiting, O.B.E. J. & A. Churchill, Ltd., London. 1951. 138 p. \$1.55.

In an introduction to this book (sixth edition) Sir John Parsons points out that many nurses pass through their training and become otherwise efficient without having much experience with eye cases. Since the structures of the eye are so delicate, special modifications of general principles of treatment often have to be adopted.

The author is consulting surgeon to Moorfields, Central and Westminster Eye Hospital and has had extensive war experience.

Sections of the manual deal with anatomy and physiology of the eye; microorganisms and their relation to disease; examination of the eye; diseases; methods of treatment; operations; and eye nursing in schools.

TOXOPLASMOSIS. Pathology of Neonatal Disease — Pathogenesis, Diagnosis and Treatment. Jacob Karl Frenkel, M.D., Ph.D., and Saul Friedlander, M.D. Public Health Service Publication No. 141, U. S. Government Printing Office, Washington. 1951. 158 p. 50 cents.

The seven cases of toxoplasmosis described in the first section of this pamphlet were selected from cases observed during a three-year period (1944-1947) in hospitals associated with the University of California Medical School. Five of the cases were fatal. Clinical histories of these and the two surviving cases are presented along with autopsy findings of four of

the fatal cases. Diagnostic and treatment methods are described.

A discussion follows, dealing with transmission of the disease, distribution of lesions, histopathology of the central nervous system, occurrence of chorioretinitis, and other clinical syndromes.

In a study of patients with chorioretinitis it was noted that those with positive toxoplasmin tests had a much earlier onset of symptoms (mean age 13 years) than patients with negative toxoplasmin tests (mean age at onset 28 years). "Recently," the report continues, "these data obtained by use of the skin test were extended and confirmed by use of the dye test and the complement-fixation test. We found that the correlation between the presence of chorioretinitis and the finding of positive tests for toxoplasmosis is a rather good one (about 70 per cent). Furthermore, in San Francisco, the incidence of positive tests in patients with chorioretinitis far exceeded the incidence of positive tests in a control group of unselected individuals of comparable age, the actual difference being 5.5 times the standard error of the difference. We have, therefore, good reason to surmise that in San Francisco chorioretinitis is due to toxoplasmosis in somewhat less than 70 per cent of such patients. It was indicated also that these patients contracted their infection in childhood. In general toxoplasmic infection seems to be accompanied by more severe signs of disease and sequelae, the younger the age group. If we regard the effects of toxoplasmic infection acquired in different age groups as varying in degree rather than in kind, the conceptual separation of congenital and postnatally acquired chorioretinitis

may be avoided. Adults with positive tests for toxoplasmosis rarely ever show lesions of chorioretinitis. For example, none of the mothers giving birth to toxoplasmic infants mentioned in this paper, nor any described by other authors, had signs of chorioretinitis."

TRANSACTIONS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM. Vol. LXXI. Session 1951. J. & A. Churchill, Ltd., London. 1952. 794 p. \$6.00.

This volume comprises the proceedings of the Ophthalmological Society of the United Kingdom during its 71st session, March 1951, together with reports of the proceedings of the affiliated societies, 1950-51. Also included are lists of the Society's presidents and members; and the rules of the organization. The volume is profusely illustrated and carefully indexed.

THE SIGNIFICANCE OF HEREDITY IN OPHTHALMOLOGY. A Tasmanian Survey. J. Bruce Hamilton, M.D., Ch.M., D.O., D.O.M.S., F.R.A.C.S. A. H. Massina & Co., Pty., Ltd., Melbourne, Australia. 1951. 164 p. \$7.00.

Dr. Hamilton describes the difficulties he encountered in making this pioneer survey. The inhabitants of Tasmania are very reticent about their antecedents; the population of some 250,000 is sparse and scattered. However, as the result of 15 years of investigation, Dr. Hamilton presents a list of 18 inherited eye diseases found on the island, and 111 pedigrees.

He points out that little attempt has been made throughout the world to check the enormous disability of hereditary eye disease, probably because of lack of reliable data. In Tasmania such disease accounts for 25 to 30 per

cent of blindness. It is believed that at least 40 per cent of blindness in the island is preventable through the adoption of certain measures. These include voluntary sterilization for carriers of hereditary eye disease, prohibition of consanguineous marriages, and voluntary pre-marital certification; also notification by midwives of abnormal conditions in the eyes of infants under the age of 28 days, and precise instruction to midwives for prophylaxis of ophthalmia neonatorum.

A considerable section of the book is devoted to historical background, local conditions and problems relating to education, employment and welfare. Of the six states in the Commonwealth of Australia only three have organized facilities for the partially seeing—Tasmania, Victoria and New South Wales.

IES LIGHTING HANDBOOK. (Second edition). Illuminating Engineering Society, New York. 1952. 988 p. \$8.00.

Essential information on light and lighting, in simple terms and condensed style, is presented in the second edition of this well-known reference book. Thirty-four of the Illuminating Engineering Society's technical committees having a membership of about 500 individuals are largely responsible for its preparation.

In an early section on *Light and Vision* we are reminded that without light the best eyes are useless. If required to live or work under poor illumination persons with normal eyes frequently experience temporary discomfort or disability that reduces their visual efficiency. The benefits of good lighting are greatest for those with subnormal vision.

Demonstrations of cooperation be-

tween eye specialists and illuminating engineers are becoming more common. In industry, for example, the trend is toward the assignment of vision problems, including job analysis, to committees comprising a medical director, safety engineer, ophthalmologist or optometrist, and an illuminating engineer.

Among the numerous subjects covered in this comprehensive book are: the physics of light, its measurement and control; color; lighting of interiors, exteriors, sports areas, streets and highways; transportation lighting; photographic, reproduction, projection, television and radar screen lighting. A section on manufacturers' data and a detailed index are included.

HANDBOOK OF DANGEROUS MATERIALS. N. Irving Sax assisted by W. W. Schultz and M. J. O'Herin. Reinhold Publishing Corporation, New York. 1951. 856 p. \$15.00.

The authors' aim is to present a digest of the available literature concerning the hazardous properties of some 5,000 materials. The book is directed to industrial physicians, safety inspectors, foremen and plant managers, and is also intended as a reference manual for research and development laboratories. Various sections deal with general chemicals; explosives; fungus diseases and fungicides; radiation and radiation hazards; and shipping regulations. Under the last heading the complete shipping regulations of the Interstate Commerce Commission are given. A list of references is included in each section.

The authors explain that they have "shunned originality" and have tried to present accepted viewpoints whenever possible.

MATERNAL CARE AND MENTAL HEALTH. John Bowlby, M.D. World Health Organization, Palais Des Nations, Geneva. 1951. 179 p. \$2.00.

Dr. Bowlby of the World Health Organization has written an extensive report on the relationship between maternal care in childhood and mental health in which he draws attention to the great need for care in a home environment rather than in an institution. One factor he mentions in the conclusion as hindering progress is the woeful scarcity of skilled social workers. He then adds:

"The second factor which still operates is a lack of conviction on the part of governments, social agencies, and

the public that mother-love in infancy and childhood is as important for mental health as are vitamins and proteins for physical health. This lack of conviction has two roots—emotional and intellectual. A strong prejudice against believing it is not infrequently found in people who are heatedly preoccupied by the alleged inadequacy of children's own parents. . . . Members of committees, too, in contemplating the fruits of their labours, are apt to find more personal satisfaction in visiting an institution and reviewing a docile group of physically well cared for children than in trying to imagine the same children, rather more grubby perhaps, happily playing in their own or foster-homes."

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FLORENCE NELSON,
Editor

Sworn to and subscribed before me this 10th day of October, 1952.

CLARE M. DALEY
Notary Public, State of New York

[SEAL]
(My commission expires March 30, 1954.)

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